

ΕΛΛΗΝΙΚΗ  
ΕΠΙΣΤΗΜΟΝΙΚΗ  
ΕΤΑΙΡΕΙΑ  
ΕΔΑΦΟΜΗΧΑΝΙΚΗΣ  
& ΓΕΩΤΕΧΝΙΚΗΣ  
ΜΗΧΑΝΙΚΗΣ

# Τα Νέα

23

## της Ε Ε Ε Ε Γ Μ

Τους τελευταίους μήνες έχουμε γίνει μάρτυρες συντονισμένων προσπαθειών αφ' ενός μεν να δοθούν επαγγελματικά δικαιώματα σε αποφοίτους κολλεγίων, που λειτουργούν στην Ελλάδα με συμβάσεις δικαιόχρησης από κάποια πανεπιστήμια του εξωτερικού, χαμηλού έως πολύ χαμηλού κατά κανόνα επιπέδου, αφ' ετέρου δε να επεκταθή η «ανωτατοποίηση» των ΤΕΙ, να τους δοθή το δικαίωμα να διοργανώνουν μεταπτυχιακούς κύκλους σπουδών, αλλά και έρευνα, που θα οδηγή στην απονομή διδακτορικού τίτλου και βέβαια να τους δοθούν και επαγγελματικά δικαιώματα ισότιμα με αυτά των αποφοίτων πανεπιστημιακών σχολών!!!

Θεωρούμε πολύ ενδιαφέρουσα και παραθέτουμε (σελ. 3) την σχετική εισήγηση του κ. Θεοδώρου Βουδικλάρη, Πολιτικού Μηχανικού και Προέδρου του Ινστιτούτου Οικονομίας των Κατασκευών, στο 3<sup>ο</sup> Πανελλήνιο Συνέδριο Αντισεισμικής Μηχανικής με θέμα «Νομικά θέματα αντισεισμικών κατασκευών - Δικαιώματα μελέτης και κατασκευής ως συνάρτηση της εκπαίδευσης», στην οποία θίγονται κυρίως τα θέματα των κολλεγίων, αλλά και θέματα των εξετάσεων που διεξάγει το Τεχνικό Επιμελητήριο Ελλάδος για την χορήγηση της άδειας άσκησης επαγγέλματος του πολιτικού μηχανικού.

Αρ. 23 – ΑΥΓΟΥΣΤΟΣ 2009

### Καλό Υπόλοιπο Καλοκαίρι ...



Φωτογραφία: Διέλευση της «ΑΡΓΩ» από την Διώρυγα της Κορίνθου στις 2 Ιουλίου 2008 (Άρης Μεσσήνης)



## Π Ε Ρ Ι Ε Χ Ο Μ Ε Ν Α

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### ΑΠΟ ΤΗΝ ΣΥΝΤΑΞΗ

Το επόμενο τεύχος του περιοδικού (Οκτωβρίου 2009) θα είναι αφιερωμένο στο XVII International Conference on Soil Mechanics and Geotechnical Engineering, που θα διεξαχθεί στην Αλεξάνδρεια από τις 5 έως τις 9 Οκτωβρίου 2009, καθώς και στα Satellite Conferences, που θα διεξαχθούν πριν από αυτό.

Στο μεθεπόμενο τεύχος (Δεκεμβρίου 2009) προγραμματίζουμε ένα αφιέρωμα στους Ευρωκώδικες και καλούνται τα μέλη της ΕΕΕΕΓΜ που ενδιαφέρονται να παρουσιάσουν κάτι σχετικό να το στείλουν σε επεξεργασία ηλεκτρονικά αρχεία (word) μέχρι την 30<sup>η</sup> Νοεμβρίου 2009.



## **Νομικά θέματα αντισεισμικών κατασκευών** **Δικαιώματα μελέτης και κατασκευής ως συνάρτηση** **της εκπαίδευσης**

**Θ. Βουδικλάρης, Πολιτικός Μηχανικός, Πρόεδρος ΙΟΚ**

Κύριε Πρόεδρε, Κύριοι καθηγητές, Κυρίες και Κύριοι

Ομολογώ ότι η επικαιρότητα μου επέβαλε να αναθεωρήσω τις αρχικές μου σκέψεις για την αντιμετώπιση του θέματος που μου εμπιστεύθηκε και με το οποίο με τίμησε η Οργανωτική Επιτροπή του Συνεδρίου. Δεν ενννώ την υπόθεση του Βατοπεδίου, ενννώ την απόφαση του Ευρωπαϊκού Δικαστηρίου και την συναφή πρόθεση του Υπουργείου Παιδείας να αγνοήσουν την πραγματική στάθμη των προσφερομένων σπουδών, να αγκιστρωθούν σε αμφισβητήσιμες ερμηνείες διατάξεων και να εξισώσουν τα διάφορα «Κολλέγια» ή Παραρτήματα Βρετανικών Πολυτεχνικών Σχολών ή άλλης μορφής Ιδιωτικά Πανεπιστήμια με τα πραγματικά Πολυτεχνεία, σε τίτλους και επαγγελματικά δικαιώματα. Μια πρόθεση στην οποία εναντιώνονται, απολύτως δικαίως, το ΤΕΕ και όλα τα ΑΕΙ, προσπαθώντας να «αμυνθούν περί πάτρης» και υποκαθιστώντας τους εκάστοτε πολιτικούς υπεύθυνους, που δεν αντέταξαν την οφειλόμενη αντίσταση στους κερδοσκοπούντες από αυτή την υπόθεση.

Η ευπάθεια της χώρας μας στον σεισμό και η αυξημένη φροντίδα που διατίθεται στις σπουδές των Πολυτεχνείων μας για την αντιμετώπισή του, είναι ένας επί πλέον λόγος τόσο για την εναντίωσή σ' αυτή την πλασματική «εξίσωση» ικανοτήτων και δικαιωμάτων, όσο και για την συζήτηση του θέματος στο παρόν συνέδριο.

Ως γνωστόν όλες οι Ελληνικές Υπηρεσίες, για ένα πλήθος αντικειμένων στα οποία εφαρμόζονται δυσμενείς διατάξεις για τη χώρα μας, επικαλούνται τις επιταγές της Ευρωπαϊκής Ένωσης, αποκρύπτοντας επιμελώς ότι οι διατάξεις είναι δυσμενείς για μάς επειδή, κατά τη λήψη των αποφάσεων, δεν επιχειρήσαμε να προσαπίσουμε τα συμφέροντά μας, δεν δείξαμε την ιδιαιτερότητά μας, δεν προσπαθήσαμε να πείσουμε με επιχειρήματα, πολύ συχνά δεν μετείχαμε καν, δεν παριστάμεθα. Οι εκπρόσωποί μας, κατά πάγια αρχή με σπάνιες εξαιρέσεις, όταν λαμβάνονται οι σχετικές αποφάσεις (ακόμη και αν παρίστανται) δεν εναντιώνονται επαρκώς, δεν στέκονται ικανοί να αμυνθούν στα προφανή συμφέροντα άλλων χωρών που προσαθούν να εξαγάγουν τα προϊόντα της οποιασδήποτε (εδώ της «εκπαιδευτικής») βιομηχανίας τους, τα οποία οι χώρες αυτές θεωρούν συχνά "Bon pour l' Orient". Οι πολιτικοί μας καμαρώνουν στις δημόσιες εμφανίσεις τους ότι μετέχουμε στα κέντρα λήψεως αποφάσεων της Ευρώπης αλλά, όταν έρθει η ώρα να μετάρχουμε στη λήψη των αποφάσεων, κάνουμε οικονομία στην δαπάνη αποστολής εκπροσώπου. Είμαστε μια χώρα που δεν ενδιαφέρεται για το **συνολικό** κόστος μιας δράσεως ή μιας παραλείψεως, μας ενδιαφέρει μόνο να «γλυτώσουμε» από την αρχική, την άμεση δαπάνη, δεν μας νοιάζει πόσο ακριβά πληρώνουμε αυτή την «οικονομία», δεν είμαστε σε θέση να εκτιμήσουμε πόσο μας ζημιώνει η απουσία μας κατά τη λήψη των αποφάσεων, πόσο μας μεταμορφώνει σε υπάκουους υποτακτικούς του συμφέροντος των άλλων.

Στη συγκεκριμένη περίπτωση δεν αναλογιζόμαστε πόσο μπορεί να στοιχίσει η ανεπαρκής μελέτη ή επίβλεψη ή κατασκευή ενός έργου, από κάποιον «Κολλεγιόπαιδα», στον επόμενο σεισμό.

Ποια θα είναι η στάθμη των αποφοίτων αυτών των «Ιδρυμάτων» μας είναι ήδη γνωστό από σήμερα. Είναι απολύτως γνωστό, από τους προσερχόμενους στις επαγγελματικές εξετάσεις των Πολιτικών Μηχανικών στο ΤΕΕ, για την Άδεια Ασκήσεως Επαγγέλματος. Προσερχόμενους από Σχολές σαν αυτές με τις οποίες σκοπεύουμε να εξισώσουμε με τα Πολυτεχνεία

μας, μερικές εκ των οποίων διαφημίζονται ήδη στα ραδιόφωνα, τις τηλεοράσεις και τις εφημερίδες. Και που τους «βαφτίζουμε» κάποια στιγμή μηχανικούς, στο μεγαλύτερο ποσοστό τους, **με την συνευθύνη του ΤΕΕ**, που δεν μπορεί βέβαια να απαλλαγεί από τα ελαττώματα της κοινωνίας μας και των πολιτικών της.

Είναι πολύς καιρός τώρα, που στις εξετάσεις τις οποίες ενεργεί το ΤΕΕ για τη χορήγηση της Άδειας Ασκήσεως Επαγγέλματος στους Πολιτικούς Μηχανικούς (θα περιοριστώ μόνο σ' αυτούς), οι προσερχόμενοι από Βρετανικές Πολυτεχνικές σχολές, εμφανίζονται εξαιρετικά αδύναμοι σε γνώσεις, πλήρως ακατάλληλοι για την άσκηση του επαγγέλματος που διεκδικούν. Το ποσοστό αυτών των αποφοίτων, σε σχέση με το σύνολο των εξεταζομένων στην Αθήνα, είναι μεγαλύτερο του 50%. Σε παρεμφερές επίπεδο γνώσεων βρίσκονται και πολλοί από τους προσερχόμενους από τις πρώην ανατολικές χώρες, που είναι σχετικώς λίγοι σε αριθμό.

Σε μια πολύ συνοπτική και προσεγγιστική περιγραφή, όπως είναι γνωστό, στη Βρετανία χορηγείται ένα πρώτο πτυχίο στα τρία χρόνια «τεχνικών» σπουδών, ύστερα από τα οποία οι ως άνω πτυχιούχοι εκπονούν κάτι σαν «πτυχιακή» ή «διπλωματική» εργασία, που θεωρείται ως το τέταρτο έτος σπουδών, που εξασφαλίζει στον πτυχιούχο τον τίτλο που αρνείται του Υπουργείου Παιδείας στους αποφοίτους των Ελληνικών Πολυτεχνείων, τον τίτλο του master. Στην Ελλάδα εξασφαλίζει (σύμφωνα με κάποια διάταξη) την αναγνώριση από τον αρμόδιο φορέα (ΔΙΚΑΤΣΑ ή ΔΟΑΤΑΠ) της «ισοτιμίας» προς το ελληνικό δίπλωμα Πολιτικού Μηχανικού, το οποίο αποκτάται με εισαγωγικές εξετάσεις και πενταετείς σπουδές.

Στο ΤΕΕ όλοι οι προσερχόμενοι για τη χορήγηση της Άδειας Ασκήσεως του Επαγγέλματος, εξετάζονται (με κάθε προσήνεια και επιείκεια) κυρίως στη διπλωματική τους εργασία. Γίνονται και μερικές πολύ απλές ερωτήσεις που αφορούν στις βασικές γνώσεις του επαγγέλματος. Άραγε, όμως, γιατί στη διπλωματική τους εργασία; Άραγε ποιο είναι το αντικείμενο αυτής της διπλωματικής, ποιος το διάλεξε; Μπορεί κάποιος να περάσει στην επαγγελματική εξέταση Πολιτικού Μηχανικού με διπλωματική εργασία «περί Δικαίου»; Φαίνεται πως μπορεί.

Κατά κανόνα αυτές οι διπλωματικές εργασίες των προερχομένων από τις ως άνω χώρες είναι «κάπως περιγραφικές» π.χ. «Το κυκλοφοριακό πρόβλημα της Αθήνας» ή «Η ατμοσφαιρική ρύπανση της Αθήνας». Ενίοτε μοιάζουν πολύ με σχολικές εκθέσεις ή ίσως θυμίζουν δημοσιογραφική έρευνα. Μερικές φορές η διπλωματική εργασία είναι μια απλή στατική και αντισεισμική μελέτη ενός κτιρίου, πράγμα που απομακρύνει κάπως τον «κίνδυνο» για τον προσερχόμενο να τον υποχρεώσει το ΔΙΚΑΤΣΑ ή ΔΟΑΤΑΠ να εξετασθεί σε κάποιο από τα ελληνικά Πολυτεχνεία στα «δύσκολα» μαθήματα Στατική, Οπλισμένο Σκυρόδεμα, Αντισεισμική Μηχανική.

Δυστυχώς, κατά την εξέταση αποδεικνύεται ότι οι σπουδαστές των σχολών που προανέφερα, δεν έχουν καμμία σχέση με την επιστήμη που υποτίθεται ότι σπούδασαν, σε ποσοστό της τάξεως του 90%, το ποσοστό δηλώνεται από τους εξεταστές, δεν είναι προσωπική εκτίμηση. Πολύ συχνά έχουν άγνοια και του αντικειμένου της (περιγραφικής) διπλωματικής εργασίας που υποτίθεται ότι συνέταξαν. Μερικές φορές (κυρίως όσον αφορά τους προσερχόμενους από ανατολικές χώρες) δεν γνωρίζουν ούτε τη γλώσσα της χώρας που σπούδασαν και στην οποία «διδάχθηκαν», δεν είναι σε θέση να αναγνώσουν τους τίτλους των κεφαλαίων της εργασίας που παρουσιάζουν ως δική τους. Η άγνοιά τους είναι προκλητική και απόλυτη, έχουν ΜΑΥΡΑ ΜΕΣΑΝΥΧΤΑ.

Δεν είναι εύκολο να κατανείμεις την ευθύνη μεταξύ του Εκπαιδευτικού Ιδρύματος και του εκπαιδευθέντος, το αποτέλεσμα όμως είναι ότι χορηγήθηκε πτυχίο. Οδηγείσαι να σκεφτείς μήπως το Ίδρυμα στο οποίο σπούδασε αυτός ο σπου-



δαστής, και του έδωσε πτυχίο, δεν ήταν Σχολή Πολιτικών Μηχανικών.

Τους ρωτά ο εξεταστής «γιατί μπαίνουν τα σίδερα στο σκυρόδεμα» και δεν ξέρουν. Τους ρωτά «αν μπαίνουν επάνω ή κάτω» και δεν ξέρουν. Τους ρωτά «από τι υλικά φτιάχνεται το σκυρόδεμα» και δεν ξέρουν. Τους ρωτά «πόσα κιλά τσιμέντο έχει ένα κυβικό μέτρο σκυροδέματος» και δεν ξέρουν. Μερικοί δύσκολοι εξεταστές ζητούν να τους σχεδιάσει ο εξεταζόμενος το διάγραμμα ροπών κάμψης ενός προβόλου ή (αν οι εξεταστές είναι στις «κακές τους») τους ζητούν το αντίστοιχο διάγραμμα σε ένα φορέα μορφής «Γ», οπότε πέφτει γέλιο.

Είναι θλιβερό, αλλά πρέπει να το ομολογήσουμε. Πολλοί από αυτούς τους εξετασθέντες έχουν σήμερα Άδεια Ασκήσεως του Επαγγέλματος του Πολιτικού Μηχανικού, είναι συχνά ελέγχοντές μας σε κάποια Υπηρεσία, συντάσσουν αντισεισμικές μελέτες, κάνουν επιβλέψεις, παρακολουθούν την εκτέλεση Συμβάσεων. Έχουν εκμεταλλευτεί την απόγνωση στην οποία οδηγούνται κάποτε οι εξεταστές ή την άμετρη επιείκεια, που κατευθύνεται από ολόκληρη την κοινωνία μας και έχει γίνει έξις.

Υπάρχει εξήγηση γι' αυτή την κατάσταση. Στο εξωτερικό δεν πηγαίνουν οι καλύτεροι Έλληνες μαθητές, πηγαίνουν κατά κανόνα αυτοί που δεν μπορούν να εισαχθούν ούτε στα ΤΕΙ. Και η Βρετανία έχει γεμίσει από «Πολυτεχνικές» Σχολές, που ζουν και προσφέρουν στην οικονομία της χώρας τους από τα υψηλά διδάκτρα (και τις δαπάνες διαβίωσης) των ξένων, τους οποίους δέχονται όλους προθύμως. Πόσο συμφέρουσα είναι αυτή η βιομηχανία μπορεί να το εκτιμήσει κανείς από την προσπάθεια επεκτάσεως. Χωρίς αμφιβολία υπάρχουν και εκεί Πανεπιστήμια των οποίων οι απόφοιτοι «πετάνε σπίθες». Αυτό συμβαίνει άλλωστε σε όλον τον κόσμο, υπάρχουν πολύ καλές σχολές και πολύ μέτριες σχολές. Στις πολύ καλές δεν σε δέχονται εύκολα. Για τους Βρετανούς υπηκόους αποφοίτους πάντως, η «απόσβεση» των δονήσεων της, ενδεχομένως ανεπαρκούς, εκπαιδύσεως επιτυγχάνεται με το εκεί εφαρμόζόμενο σύστημα «σταδιακής ανόδου» στα δικαιώματα του επαγγέλματος, βάσει της αποκτωμένης πείρας, ενός συστήματος που δεν υπάρχει στη χώρα μας.

Μεγάλη ευθύνη για το παραγόμενο αποτέλεσμα έχει και το ΤΕΕ, το οποίο απήτησε (και πήρε) την αρμοδιότητα για τις επαγγελματικές εξετάσεις, αλλά δεν στάθηκε στο ύψος που έπρεπε. Πρωτεύοντα ρόλο στη δημιουργία (και την ανοχή) αυτής της καταστάσεως παίζει ο τρόπος με τον οποίο γίνεται η εξέταση – προφορικά, σύμφωνα με την ΕΔ5/4/339/1984 Κοινή Υπ. Απόφαση των Υπουργών Παιδείας και Δημ. Έργων, ώστε να μη μπορεί κανείς να γνωρίζει ή να αποδείξει εκ των υστέρων ποιες ερωτήσεις έγιναν και ποιες απαντήσεις δόθηκαν.

Ο τρόπος αυτός εξετάσεως δεν είναι βέβαια άμοιρος σκοπιμοτήτων, μας βοηθάει να «περνάμε» τους «δικούς» μας και επίσης να «φτιάχνουμε» δικούς μας. Αυτή η μορφή λαϊκισμού έχει περάσει σε όλες τις εκφάνσεις της ζωής μας και το ΤΕΕ δεν κατάφερε να γλυτώσει. Επικαλούμαστε τη δημοκρατικότητά μας, επιδιώκουμε όμως να κριθούμε από «στημένες» εκλογικές διαδικασίες, έχει ξαναγίνει, σχετικά πρόσφατα.

Στη συγκεκριμένη περίπτωση όμως τα πράγματα είναι σοβαρά. Οι συνάδελφοί μας αυτοί θα κληθούν να αντιμετωπίσουν τον «καρκίνο των θεομηνιών», θα κληθούν να προστατέψουν ανθρώπινες ζωές και περιουσίες. Θα κληθούν να κάνουν πραγματογνωμοσύνες, να κρίνουν τους άλλους, να αποφανθούν για τις αιτίες μιας βλάβης ή μιας καταστροφής. Θα κληθούν να υπερασπίσουν την αξιοπρέπεια του επαγγέλματος.

Η σημερινή κωμωδία των επαγγελματικών εξετάσεων, κοινών για «εγχώριους» και «Ευρωπαίους», πρέπει να σταματήσει. Κατ' ελάχιστον, αλλά αμέσως, η εξέταση για τη χορήγηση της Αδείας Ασκήσεως Επαγγέλματος στους μηχανικούς

πρέπει να γίνεται γραπτώς και να εκτείνεται σε ένα ευρύ φάσμα δραστηριοτήτων του επαγγέλματος. Το γραπτό κείμενο να αντιγράφεται αμέσως με ηλεκτρονική σάρωση (σκανάρισμα), να αποστέλλεται αμέσως και αυτομάτως μέσω δικτύου και να «αποθηκεύεται» στο Υπουργείο Παιδείας και στο ΥΠΕΧΩΔΕ, ώστε να μην υπάρχει η αμφιβολία για «νόθευση» και να είναι ανά πάσαν στιγμήν δυνατός ο έλεγχος, τόσο του εξεταζόμενου όσο και του εξεταστή, από κάθε επιθυμούντα και αρμόδιο.

Ίσως θα έπρεπε να επανέλθει το παλιό σύστημα κάποιας μορφής οκταώρων, για να μπορεί το όργανο που αποφαινεται για την ικανότητα του εξεταζόμενου, να σχηματίζει πιο ολοκληρωμένη αντίληψη, επίσης με γραπτή εξέταση, που θα αποτρέπει τις αμφισβητήσεις και τις αυθαιρεσίες. Και πάντως η εξέταση πρέπει να αποφύγει την «τυποποίηση», να αποφύγει τον κίνδυνο δημιουργίας «συνταγών» επιτυχίας, να έχει ποικιλία, να αφορά γενικότερα το επάγγελμα, να μην είναι αποστήθιση Κεφαλαίων. Για να μπορεί να εξασφαλιστεί ότι κανένας δεν θα περνάει «αβρόχοις ποσίν» την πόρτα της εισόδου του ΤΕΕ, επειδή φέρνει απλώς ένα χαρτί που βεβαιώνει ότι σπούδασε, κανένας δεν θα απολαμβάνει ευμενέστερη μεταχείριση ως προς τον χρόνο σπουδών και τις πραγματικές γνώσεις και επιδόσεις, από τους σπουδαστές των Ελληνικών Πολυτεχνείων. Και επίσης, όταν απαιτείται, να χρησιμοποιούνται αυτά τα σκαναρισμένα κείμενα με τις ερωτήσεις και τις απαντήσεις, ή/και τα αποτελέσματα των οκταώρων, για να ζητηθούν εξηγήσεις από τους καθηγητές και τα Ιδρύματα που έβγαλαν τέτοιους αποφοίτους.

Το Υπουργείο Παιδείας και η Ελληνική Βουλή πρέπει να σκεφτούν καλά αν πρέπει να αποδεχτούν μια «δικαστική» απόφαση που ερμηνεύει (αυθεντικά άραγε;) το Ελληνικό Σύνταγμα, που αγνοεί την σεισμική ιδιαιτερότητα της χώρας μας και αδιαφορεί για τις συνέπειες, είναι ανάγκη να αναλογιστούν αν και υπό ποιες προϋποθέσεις, θα πρέπει να χορηγήσουν Άδειες Λειτουργίας ιδιωτικών Πανεπιστημίων ή παραρτημάτων ξένων «Πολυτεχνείων» ή «Κολλεγίων» στην Ελλάδα, αφού φτάσαμε στο σημείο να είναι υποχρεωτική η υποταγή μας σε ξένες συνθήκες, διαδικασίες, νοοτροπίες, **ανάγκες και συμφέροντα**. Και, κατ' ελάχιστον, να εξαντλήσουν κάθε νομική δυνατότητα αντιστάσεως προς την αυθεντία (!!!) των Βρυξελλών, ακόμα και χρησιμοποιώντας τα δείγματα αγραμματοσύνης των εξεταζομένων, αλλά και ασφαλώς κάνοντας χρήση της ιδιαιτερότητας του σεισμικού κινδύνου, που απειλεί τη χώρα μας.

Αλλά, ας μην τα περιμένουμε όλα από τους άλλους. Το ΤΕΕ πρέπει να καθιερώσει διαδικασίες ένταξης μελών, με τρόπο που θα αποτρέπει την κατάληψή του από αμφιβόλου ποιότητας μηχανικούς, έχει και εκείνο την υποχρέωση να υπερασπιστεί την Ιστορία του. Ενδεχομένως θα μπορούσε να απαιτήσει, ως προϋπόθεση εγγραφής, να έχει ήδη γραφεί ο προσερχόμενος στον αντίστοιχο επαγγελματικό φορέα της χώρας από την οποία προέρχεται. Και φυσικά πρέπει να βελτιώσει τις δικές του εσωτερικές διαδικασίες, ώστε οι ενέργειες και οι αποφάσεις του να είναι δίκαιες, αδιάβλητες και αμερόληπτες, να μην είναι αμφισβητήσιμες, να μην είναι επιδεκτικές προσφυγών στην εποπτεία της πολιτείας και στην Εποπτεία της Δημόσιας Διοίκησης.

Κυρίες και Κύριοι

Στο τεύχος του Μαρτίου του 1970 των Τεχνικών Χρονικών έχει δημοσιευτεί το κείμενο μιας διαλέξεως του καθηγητή Παύλου Σαντορίνη, την οποία προλόγισε ο πρύτανης Ευτύχιος Κοκκινόπουλος.

Στη διάλεξη αυτή ο Π. Σαντορίνης αναφέρθηκε στον Αϊνστάιν (μεγαλύτερό του στην ηλικία), με τον οποίο βρέθηκαν κάποια περίοδο μαζί στο Πολυτεχνείο της Ζυρίχης, ο ένας ως σπουδαστής και ο άλλος ως καθηγητής. Έδειξε, επιστημαίνοντας και επιμένοντας στη σημασία των βασικών σπουδών, πόσο στοίχισε στον Αϊνστάιν (που ήταν φυσικός) η αδιαφορία που



αυτός έδειξε (όταν ήταν σπουδαστής) και η αδυναμία του στα μαθηματικά, που τον συνόδευε σε ολόκληρη τη ζωή του.

Αν λοιπόν σε ένα άνθρωπο - φαινόμενο σαν τον Αϊνστάιν στοίχισαν οι ατελείς βασικές σπουδές σε κάποιον τομέα, φανταστείτε τι πρέπει να περιμένουμε από σπουδαστές που οι αδυναμίες των σπουδών τους είναι σαν αυτές που προανέφερα, τέτοιες που να αναρωτιέσαι αν υπάρχουν σπουδές. Αναλογιστείτε αν και σε ποιο βαθμό μπορούν αυτοί οι σπουδαστές να καλύψουν, ως επαγγελματίες, τις ελλείψεις των βασικών γνώσεων του επαγγέλματος, τις αδυναμίες μιας πλήρους άγνοιας.

Αυτόν τον κίνδυνο πρέπει να τον γνωστοποιήσουμε και να τον επισημάνουμε, για να πείσουμε την κοινωνία μας, που θα είχε ίσως την προκατάληψη να θεωρήσει την αντίδραση του ΤΕΕ ως συντεχνιακό αίτημα, ότι η αξιοκρατία σε τέτοιους κρίσιμους τομείς είναι εκ των ουκ άνευ.

Ευχαριστώ

3<sup>ο</sup> Πανελλήνιο Συνέδριο Αντισεισμικής Μηχανικής, Αθήνα 7 Νοεμβρίου 2008



# ΑΝΑΣΚΟΠΗΣΗ ΓΕΓΟΝΟΤΩΝ ΓΕΩΤΕΧΝΙΚΟΥ ΕΝΔΙΑΦΕΡΟΝΤΟΣ



## 77η Ετήσια Συνάντηση - 23<sup>ο</sup> Συνέδριο ICOLD

Στο διάστημα από 21 έως 24.05.09 και από 25 έως και 29.05.09 διεξήχθη στην πρωτεύουσα της Βραζιλίας Brasília η 77η Ετήσια Συνάντηση και το 23<sup>ο</sup> Συνέδριο αντίστοιχα της ICOLD, στα οποία παρέστη ο υπογράφων, ως εκπρόσωπος της Ελληνικής Επιτροπής Μεγάλων Φραγμάτων. Συνοπτικά, ανά ημέρα οι εργασίες με ιδιαίτερη αναφορά σε θέματα ιδιαίτερου Ελληνικού ενδιαφέροντος που συζητήθηκαν, είχαν ως ακολούθως:

21<sup>η</sup> Μαΐου: Εγγραφή στο Συνέδριο – Παραλαβή έντυπου υλικού - Συσκέψεις Προέδρων Τεχνικών Επιτροπών.

22<sup>η</sup> Μαΐου: Συσκέψεις των 24 Τεχνικών Επιτροπών της ICOLD.

Ο υπογράφων συμμετείχε στις εργασίες της Επιτροπής σύνταξης Παγκόσμιου Καταλόγου Φραγμάτων (World Register of Dams - μόνη Τεχνική Επιτροπή με Ελληνική συμμετοχή έως την ημερομηνία αυτή) σε όλη τη διάρκεια των εργασιών της, οι οποίες ολοκληρώθηκαν στην πρωινή συνεδρία. Η συμμετοχή του υπογράφοντος έγινε προσωρινά και μετά από υπόδειξη του κ. Floegl, Προέδρου της Επιτροπής αυτής, στη θέση του προηγούμενου εκπρόσωπου της ΕΕΜΦ. Ο υπογράφων ενημέρωσε τον Πρόεδρο ότι μελλοντικά ενδιαφέρεται να συμμετέχει στην Επιτροπή το μέλος του Προεδρείου της ΕΕΜΦ κ. Παπαχατζάκης, και ο κ. Floegl ζήτησε να γίνει σχετική γραπτή πρόταση από την ΕΕΜΦ (θα εγκριθεί στην επόμενη Ετήσια συνάντηση).

Ο Πρόεδρος ενημέρωσε ότι η συλλογή των στοιχείων από πολλές χώρες είναι ελλιπής έως ανύπαρκτη (πρόκειται κυρίως για χώρες που δεν είναι μέλη της ICOLD) και κάλεσε τα μέλη τα οποία είναι επιφορτισμένα με την παραπάνω εργασία να εντείνουν την προσπάθεια ώστε με το τέλος του έτους (οριακή προθεσμία) να έχει προχωρήσει ουσιαστικά η συλλογή. Η καταγραφή θα καλύπτει υποχρεωτικά φράγματα έως το τέλος του 2006, αλλά είναι σαφώς αποδεκτή και η καταγραφή που ολοκληρώθηκαν ή κατασκευάζονται και μεταγενέστερα (συγκεκριμένα είπε έως το τέλος του 2008). Σε ερώτηση του υπογράφοντος η Επιτροπή συμφώνησε να θεωρούνται ολοκληρωμένα τα φράγματα στα οποία έχει γίνει έμφραξη της σήραγγας ή αγωγού εκτροπής. Επίσης, σε σχετική και πάλι ερώτηση του υπογράφοντος, αποφασίστηκε να καταγραφούν στη λίστα όλα τα φράγματα, ακόμη και αυτά που δεν έχουν κατασκευαστεί με πλήρεις μελέτες ή δεν έχουν αδειοδοτηθεί, καθώς η πλήρωση των ταμειωτήρων τους εγκυμονεί πιθανούς κινδύνους.

Ορισμένα μέλη παραπονέθηκαν για δυσκολίες στην συμπλήρωση του ψηφιακού φύλλου (λόγω μακροενοτολών κλπ) και το μέλος της Επιτροπής κ. Le Dellou δήλωσε ότι θα φροντίσει να τροποποιήσει κατάλληλα το φύλλο. Συζητήθηκε εκτεταμένα το θέμα της βελτίωσης συλλογής στοιχείων (κυρίως στις χώρες του τρίτου κόσμου, όπου παρατηρούνται οι πε-

ρισσότερες ελλείψεις, αλλά όχι μόνο) και έγιναν διάφορες προτάσεις όπως :

- Καταρχήν προσωπικές επαφές με άτομα που έχουν τη δυνατότητα αναζήτησης στοιχείων (μέσω γνωριμιών με υπευθύνους σε Υπουργεία των χωρών αυτών κλπ). Στην περίπτωση αυτή η λίστα καλό να προωθηθεί μετά την αποκατάσταση της επαφής, ώστε να μην τρομάζουν τα άτομα από τον όγκο και τις ζητούμενες λεπτομέρειες.
- Επαφές μέσω διεθνών οργανισμών (π.χ. Ευρωπαϊκή Ένωση, Παγκόσμια Τράπεζα κλπ) που έχουν Αντιπροσωπείες και Τεχνικούς Εκπροσώπους στις χώρες αυτές (πρόταση υπογράφοντος)
- Επαφές με Πανεπιστήμια για ανάθεση των παραπάνω καταγραφών σε φοιτητές, στα πλαίσια διπλωματικών τους εργασιών κλπ
- Ανάθεση συλλογής στοιχείων σε εκπροσώπους γειτονικών χωρών. Στα πλαίσια αυτά κατά τον καταμερισμό ζητήθηκε από τον υπογράφοντα ο Έλληνας εκπρόσωπος να αναλάβει τις επαφές για την καταγραφή των φραγμάτων της Αλβανίας, της F.Y.R.O.M (οι δύο αυτές χώρες είναι μέλη της ICOLD και είχα προσωπική επαφή με τους εκπροσώπους τους, οι οποίοι εκδήλωσαν καταρχήν διάθεση συνεργασίας. Εκδηλώθηκε πάντως επιφύλαξη από τον Αλβανό εκπρόσωπο (σύμφωνα με αυτόν η Αλβανία έχει περί τα 300 φράγματα που εντάσσονται στην κατηγορία των μεγάλων) για την καταγραφή όλων, καθώς αυτή συνεπάγεται σημαντική για τις δυνατότητες της Αλβανικής Επιτροπής αύξηση της ετήσιας εισφοράς στην ICOLD. Αναφέροντας το πρόβλημα στον κ. Floegl είπε ότι το έχει υπόψη και έχει σκοπό να το συζητήσει με τους οικονομικούς υπεύθυνους αλλά φοβάται ότι το Καταστατικό της ICOLD δεν επιτρέπει κάποια ιδιαίτερη μεταχείριση στο θέμα αυτό. Πρότεινε τουλάχιστον η προσπάθεια να εστιαστεί στην πλήρη καταγραφή των στοιχείων των φραγμάτων των χωρών αυτών που ήδη είναι στη λίστα.

Τονίστηκε επίσης από τον υπογράφοντα ότι για πολλά φράγματα η συλλογή στοιχείων έγινε με προφορικές συνεννοήσεις, καθώς οι επίσημοι φορείς δεν απάντησαν στις γραπτή παράκληση για συμπλήρωση του ερωτηματολογίου. Αυτό κατά την άποψη του υπογράφοντος (την οποία συμμερίστηκαν ορισμένοι εκ των παρευρισκομένων, που αντιμετώπισαν παρόμοια προβλήματα) μπορεί να δημιουργήσει κάποια προβλήματα με τους φορείς, εφόσον αυτοί δουν δημοσιευμένα τα στοιχεία χωρίς την έγκρισή τους και ιδίως εάν εντοπίσουν κάποια λάθη. Συμφωνήθηκε να μπει στον τελικό πίνακα παρατήρηση η οποίας να αναφέρει ότι η καταγραφή του πίνακα βασίστηκε στην καλύτερη δυνατή προσέγγιση αλλά ενδέχεται να περιέχει και κάποια λάθη (ή κάποια άλλη σχετική διατύπωση).

Μετά τη λήξη της σύσκεψης της Επιτροπής σύνταξης Παγκόσμιου Καταλόγου Φραγμάτων ο υπογράφων παρακολούθησε ως παρατηρητής μέρος των εργασιών των παρακάτω Τεχνικών Επιτροπών:

- Παρακολούθησης Φραγμάτων (Dam surveillance)
- Σεισμικών θεμάτων στο σχεδιασμό φραγμάτων (Seismic aspects of dam design). Ενδιαφέρον είχε η αναφορά του Προέδρου της Επιτροπής κ. Wieland (η οποία δημοσιεύεται στο πρώτο φύλλο του πολύ ενδιαφέροντος τεύχους "Current activities on Dam activities in China", το οποίο επιμελήθηκε και διένειμε η Κινεζική αντιπροσωπεία, ότι μετά από εκτεταμένη διερεύνηση και επιτόπου εξέταση κρίθηκε ότι είναι πολύ απίθανο οι ταμειωτήρες φραγμάτων της περιοχής να ευθύνονται για την εκδήλωση του καταστροφικού σεισμού στο Sichuan της Κίνας το 2008 (φαινόμενο RTS - είχαν δημοσιευτεί τέτοιες απόψεις από τα μέσα ενημέρωσης)



- Υπολογιστικών θεμάτων για την ανάλυση και το σχεδιασμό των φραγμάτων (Computational aspects on the analysis and design of dams). Στην Επιτροπή αυτή είχε προταθεί και καταρχήν γίνει δεκτή η συμμετοχή του κ. Π. Ντακούλα, ο οποίος δεν κατέστη δυνατό να παρευρεθεί στη Συνάντηση για οικογενειακούς λόγους, αλλά ενημέρωσε γραπτά τον Πρόεδρο της Τεχνικής Επιτροπής κ. Lecarrere ότι θα συμμετέχει κανονικά στις επόμενες συναντήσεις (προγραμματίζεται η αμέσως επόμενη το Σεπτέμβριο ? στη Γαλλία).

#### 23<sup>η</sup> Μαΐου: Εκτελεστική Συνάντηση (Executive meeting).

Καταρχήν έγιναν αποδεκτές η Κένυα ως το 89<sup>ο</sup> και ο Νίγηρας ως το 90<sup>ο</sup> μέλος της ICOLD. Δεν διαγράφηκαν οι χώρες οι οποίες οφείλουν εισφορές εξαιτίας και δόθηκε μία ακόμη παράταση για τακτοποίηση των εκκρεμοτήτων τους.

Στη συνέχεια έγιναν οι εκλογές για την ανάδειξη του νέου Προέδρου της ICOLD, μετά την λήξη μετά από πάροδο 3 ετών της θητείας του προηγούμενου Προέδρου Ισπανού κ. Berga. Υποβλήθηκαν 3 υποψηφιότητες, των κ.κ. Jia (Κίνα), Walz (ΗΠΑ) και Hughes (Ην. Βασίλειο). Εξελέγη από την πρώτη ψηφοφορία ο κ. Jia με 36 ψήφους επί 62 ψηφισάντων (ο κ. Walz έλαβε 14 και ο κ Hughes 12 ψήφους).

Ακολούθησε η ψηφοφορία για τον Ευρωπαϊό Αντιπρόεδρο. Υποβλήθηκαν 2 υποψηφιότητες, των κ.κ. Floegl (Αυστρία) και Ruggeri (Ιταλία). Εξελέγη από την πρώτη ψηφοφορία ο κ. Ruggeri με 43 ψήφους επί 63 ψηφισάντων (ο κ. Floegl έλαβε 20 ψήφους). Στη συνέχεια εξελέγη (χωρίς αντίπαλο) ο κ. Ekro (Νιγηρία) για την 6<sup>η</sup> θέση Αντιπροέδρου.

Ακολούθησαν παρουσιάσεις των αντιπροσωπειών της Αιγύπτου και της Ιαπωνίας, για τη διεκδίκηση του 24<sup>ου</sup> Συνεδρίου της ICOLD (υποψήφιος πόλεις το Κάιρο και το Κυότο αντίστοιχα). Την ψηφοφορία κέρδισε η Ιαπωνία, με 36 ψήφους επί 63 ψηφισάντων.

Εγκρίθηκε η πραγματοποίηση της 77<sup>ης</sup> Ετήσιας συνάντησης το 2010 στο Hanoi του Βιετνάμ. Σημειώνεται ότι στο σχετικό φυλλάδιο που διένειμε η Βιετναμική αντιπροσωπεία η FYROM αναφέρεται ως Μακεδονία. Ο υπογράφων έκανε σχετική παρατήρηση στον Πρόεδρο της Βιετναμικής Αντιπροσωπείας ο οποίος δήλωσε λανθασμένα ότι χρησιμοποίησε για τη χώρα αυτή την ονομασία της ICOLD (σημειώνεται ότι στην πινακίδα του αντιπροσώπου της στην Εκτελεστική συνάντηση η χώρα αναγραφόταν καθαρά ως : Former Yugoslav Republic of Macedonia). Θα ακολουθήσει γραπτή υπενθύμιση στη Βιετναμική αντιπροσωπεία, με ενημέρωση και της ICOLD, ώστε να προληφθούν τυχόν προβλήματα στη συνάντηση του Hanoi.

Ακολούθησαν οι παρουσιάσεις των υποψηφιοτήτων των αντιπροσωπειών της Bourkina Faso (Ouagadougou), της Νορβηγίας (Lillehammer) και της Ελβετίας (Λουκέρνη), για την ανάληψη της 78<sup>ης</sup> Ετήσιας συνάντησης το 2011. Εξελέγη (με την τρίτη και τελική ψηφοφορία) η Ελβετία, με 33 ψήφους επί 63 ψηφισάντων.

Τέλος, οι ΗΠΑ εκδήλωσαν ενδιαφέρον για να την ανάληψη της φιλοξενίας της 81<sup>ης</sup> Ετήσιας συνάντησης.

Ακολούθησε οικονομικός απολογισμός από τον Γενικό Γραμματέα της ICOLD κ. De Vito. Ο απολογισμός έγινε ομόφωνα αποδεκτός.

Δηλώθηκε ότι στο προσεχές μέλλον θα ανανεωθεί ο δικτυακός τόπος της ICOLD. Επίσης δηλώθηκε ότι είναι ελεύθερη η προσπάθεια μέσω του δικτυακού τόπου των πρώτων 100 Δελτίων (bulletins) της ICOLD και ότι σύντομα θα είναι και των υπολοίπων 12 (καλύπτεται η περίοδος έως το τέλος του 1999). Επίσης ο πρόεδρος κ. Berga δήλωσε ότι οι Εθνικές αντιπροσωπείες μπορούν να παραλάβουν εφόσον το επιθυμούν (με πληρωμή μόνο των εξόδων αποστολής) από 10 αντίγραφα των Δελτίων αυτών. Κατατέθηκε ότι βρίσκεται

στο τελικό στάδιο η επεξεργασία για έκδοση των Δελτίων από το 135 έως τον αριθμό 143.

Εγκρίθηκαν οι 3 Εκθέσεις (Reports) που είχαν υποβληθεί για έγκριση από τις σχετικές Τεχνικές Επιτροπές οι οποίες τις είχαν επιμεληθεί.

Ο απερχόμενος Πρόεδρος κ. Berga έκλεισε τη Συνεδρία με την αποχαιρετιστήρια ομιλία του, στην οποία αναφέρθηκε στα έργα και της εκδηλώσεις της ICOLD κατά την τριετία της Προεδρείας του.

Κ. ΑΝΑΣΤΑΣΟΠΟΥΛΟΣ

Πρόεδρος ΕΕΜΦ



# ΠΡΟΣΕΧΕΙΣ ΓΕΩΤΕΧΝΙΚΕΣ ΕΚΔΗΛΩΣΕΙΣ

Για τις παλαιότερες καταχωρήσεις περισσότερες πληροφορίες μπορούν να αναζητηθούν στα προηγούμενα τεύχη του «περιοδικού» και στις παρατιθέμενες ιστοσελίδες.

GeoAfrica 2009 "Geosynthetics For Africa", 2 - 5 September 2009, Cape Town, South Africa, [www.gigsa.org](http://www.gigsa.org)

Symposium Mechanics of Natural Solids, Horto, Pelion, Greece 7th - 9th September 2009, [geotechnik.uibk.ac.at](http://geotechnik.uibk.ac.at)

AMIREG 2009 - 3<sup>rd</sup> International Conference Advances in Resources & Hazardous Waste Management Towards Sustainable Development, 7 - 9 September 2009, [heliotopos.conferences.gr/amireg2009](http://heliotopos.conferences.gr/amireg2009)

Jubilee Symposium on Polymer Geogrid Reinforcement, Institution of Civil Engineering, London, 8 September 2009, [www.jubilee-symposium.co.uk.mht](http://www.jubilee-symposium.co.uk.mht)

International Symposium on Geoenvironmental Engineering ISGE2009, Sep. 8-10 2009, Zhejiang University, Hangzhou, China, [www.ssgeo.zju.edu.cn/isge2009.htm](http://www.ssgeo.zju.edu.cn/isge2009.htm)

Geological Engineering Problems in Major Construction Projects, Chengdu, China, September 9th - 11th, 2009, [www.iaeg2009.com](http://www.iaeg2009.com)

EURO:TUN 2009 Computational Methods in Tunnelling, 9-11 September 2009, Bochum, Germany, [www.eurotun.rub.de](http://www.eurotun.rub.de)



**Fragblast 9 - The 9th International Symposium on Rock Fragmentation by Blasting**  
**September 13-17, 2009, Granada, Spain**  
[www.fragblast.org](http://www.fragblast.org)

The Fragblast conferences (short for International Symposium on Rock Fragmentation by Blasting) are the worldwide forum for a scientific and technical update on all aspects of rock blasting and explosives engineering: rock fracture and movement, explosives design, testing and properties, detonics, blast design, blast seismics, numerical modeling, economical aspects, etc. Through their history, beginning in 1983, the Fragblast conferences have served the blasting community with an unparalleled combination of scientific advances and practical applications. The most well-known models, analysis tools and doctrine-driving experiences have been presented in the Fragblast symposia, which has made them a unique opportunity for exchanging knowledge, ideas and experiences among the participants. The proceedings of the Fragblast symposia are must-have lit-

erature on the working desk of researchers, scholars, consultants, field engineers and blasters.

The Fragblast community has been associated with the International Society for Rock Mechanics as Commission on Fragmentation by Blasting. Currently it is a section of the International Society of Explosives Engineers. Its main goal is to promote the understanding of explosive-rock interaction and the exchange of research and field experience in rock blasting. The Fragblast movement has been regularly meeting at the conferences of the same name approximately every three years.

In the spirit of being truly international meetings, the Fragblast Symposia have been shared among countries and continents through the years: Sweden, 1983, United States, 1987, Australia, 1990, Austria, 1993, Canada, 1996, South Africa, 1999, China, 2002 and Chile, 2006.

The 9th edition will go back to Europe, to the monumental city of Granada, Spain on September 2009. Fragblast 9 will meet the attendees' expectations of scientific and technical excellence, and charm.

Workshop on VIBRATIONS FROM BLASTING : The latest advances in vibration measurements and control will be presented on the weekend prior to the Symposium (12-13 September).

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9th International Symposium on Tunnel Construction and Underground Structures, 16-18 September 2009, Ljubljana, Slovenia, [www.drustvo-dpgk.si](http://www.drustvo-dpgk.si)



**Dixième Atelier de banc d'essai sur les Méthodes de Calcul pour les Barrages**  
**16-18 Septembre 2009, Paris, France**

Le Comité technique des méthodes de calcul pour barrages de la C.I.G.B. organise périodiquement des ateliers de calcul dans le but de valider des méthodes de référence pour les problèmes typiques posés par la conception ou la vérifi-



cation des ouvrages hydrauliques. Depuis 1991, pas moins de 27 problèmes différents ont été proposés à la communauté des chercheurs et ingénieurs, qui ont fait l'objet d'une confrontation entre les différentes pratiques internationales et ont permis de valider de nombreuses méthodes.

Le prochain atelier de calcul se tiendra en septembre 2009 à Paris. Il offrira une opportunité unique de comparer à la fois les méthodes et les logiciels en application à la résolution des problèmes les plus cruciaux qui se posent à l'heure actuelle : le comportement des grands barrages voûtes, la tenue des masques amont en béton des remblais d'enrochement, et la stabilité des appuis de barrages.

Les 3 sujets proposés seront mis à la disposition des participants dès avril 2009, pour leur permettre de développer les solutions jusqu'en août, date à laquelle les contributions seront reçues et analysées par le comité scientifique.

L'atelier proprement dit se tiendra du 16 au 18 septembre 2009. Au cours des séances techniques, les contributions dans chacun des 3 thèmes seront étudiées : chaque participant présentera ses méthodes, ses logiciels et les résultats qu'il aura obtenus. La synthèse des résultats sera ensuite exposée par un panel scientifique.

Les thèmes de calcul proposes

Thème A : "Initial strain and stress development in a thin arch dam considering realistic construction sequence"

Thème B : "Analysis of a concrete faced rockfill dam including concrete face loading and deformation "

Thème C : " Stability of a dam abutment including seismic loading"

Pour toute information pratique relative aux inscriptions ou au programme, contacter [workshop09@coyne-et-bellier.fr](mailto:workshop09@coyne-et-bellier.fr), ou [marie-louise.luissint@coyne-et-bellier.fr](mailto:marie-louise.luissint@coyne-et-bellier.fr) et consultez le site <http://www.coyne-et-bellier.fr>.



ISRM 1<sup>st</sup> Annual Technical and Cultural Field Trip, Florence, Italy, 21-22 September 2009, [coli@unifi.it](mailto:coli@unifi.it)

3<sup>ο</sup> Ελληνο - Ιαπωνικό Συμπόσιο: ΑΝΤΙΣΕΙΣΜΙΚΟΣ ΣΧΕΔΙΑΣΜΟΣ ΘΕΜΕΛΙΩΣΕΩΝ: Έμφαση στα Έργα Υποδομής, 22 - 23 Σεπτεμβρίου 2009, Σαντορίνη, [www.ntua.gr/gj-workshop](http://www.ntua.gr/gj-workshop)



**29 September 2009, London**  
[www.tunnelsandtunnellingconference.com](http://www.tunnelsandtunnellingconference.com)

Tunnels and Tunnelling International and the British Tunnelling Society are proud to announce their first jointly organised conference.

This one-day event will feature presentations from both the UK, and the international tunnelling communities with an unbridled focus on 'technical' content.

After years of attending such events, and in a time when picking the right conference for you is vital, we know we can provide content that a tunnelling attendee will actually want from a day's lectures. We will be avoiding the less specific 'brochure' type programmes and marketing style presentations, focussing instead on the topics that will benefit you as an engineer. We will also be encouraging open and frank discussion between presenters and delegates on subjects close to the heart of the tunnelling industry.

Delegate Registration: Natasha Denney  
Tel: +44 (0)208 269 7833  
Email: [ndenney@progressivemediagroup.com](mailto:ndenney@progressivemediagroup.com)



4th International Young Geotechnical Engineers (4iYGEC), 2 - 6 October 2009, Alexandria, Egypt - [www.2009icsmge-egypt.org](http://www.2009icsmge-egypt.org)

XVIIth International Conference on Soil Mechanics & Geotechnical Engineering, EARTHQUAKE GEOTECHNICAL ENGINEERING Satellite Conference, TC4 of ISSMGE, 2-3 October 2009, Alexandria, Egypt, [mamsakr@yahoo.com](mailto:mamsakr@yahoo.com)

17<sup>th</sup> International Conference on Soil Mechanics and Geotechnical Engineering "Future of Academia & Practice of Geotechnical Engineering", 5 - 9 October 2009, Alexandria, Egypt - [www.2009icsmge-egypt.org](http://www.2009icsmge-egypt.org)

Sardinia 2009 Twelfth International Waste Management and Landfill Symposium, 5 - 9 October 2009, S. Margherita di Pula (Cagliari), Sardinia, Italy, [www.sardiniasymposium.it](http://www.sardiniasymposium.it)

58th Geomechanics Colloquy 2009, 8-9 October 2009, Salzburg, Austria, [www.oegg.at](http://www.oegg.at)



Welcome to LTBD09

## 2<sup>nd</sup> International Conference LONG TERM BEHAVIOUR OF DAMS

12<sup>th</sup> - 13<sup>th</sup> October 2009, Graz, Austria (Europe)

[lamp3.tu-](http://lamp3.tu-graz.ac.at/~ltbd09/cms_new/index.php?option=com_content&task=view&id=24&Itemid=45)

[graz.ac.at/~ltbd09/cms\\_new/index.php?option=com\\_content&task=view&id=24&Itemid=45](http://graz.ac.at/~ltbd09/cms_new/index.php?option=com_content&task=view&id=24&Itemid=45)

On behalf of the LTBD09 Organizing Committee we invite you to participate in the 2<sup>nd</sup> International Conference on Long Term Behaviour of Dams, which will be held from 12<sup>th</sup> - 13<sup>th</sup> October 2009 in Graz (Austria), one of the recent European Capital of Culture. The organization of the conference is based on the scientific and technical cooperation between Hohai University (Nanjing, China), Tsinghua University (Beijing, China), Vienna University of Technology



(Vienna, Austria), University Innsbruck (Innsbruck, Austria) and Graz University of Technology (Graz, Austria).

### The Aims and Scope of the Conference

The LTBD09 conference is devoted to the long term behaviour of earth dams, rockfill dams and concrete dams including roller compacted and conventional concrete dams. The meeting will provide an excellent opportunity for engineers, scientists and operators to present and exchange their experiences and the latest developments related to the design, performance and rehabilitation of dams at an international level. The following sub-themes may include but not limited to:

- Methods of Design and Analysis of Dams
- Experimental Studies
- Dam Monitoring and Instrumentation
- Time Dependent Properties of Construction Materials for Dams and their Constitutive Modelling
- Analytical and Numerical Investigations
- Seepage under Saturated and Unsaturated Conditions
- Dam Foundation and Structure Interactions
- Seismic Aspects and Earthquake Analysis
- Safety Assessment
- Dam Maintenance
- Rehabilitation and Dam Heightening

LTBD09 Organizing Committee  
Technikerstraie 4/II  
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Austria (Europe)  
E-mail: [LTBD09@TUGraz.at](mailto:LTBD09@TUGraz.at)  
Fax : +43(0)316 873 6232



1st International Symposium on Rockfill Dams, 18 ÷ 21 October 2009, Chengdu, China, [chincold@iwhr.com](mailto:chincold@iwhr.com), [www.chincold.org.cn/zt/rockfill/en.asp](http://www.chincold.org.cn/zt/rockfill/en.asp)

16<sup>ο</sup> ΣΥΝΕΔΡΙΟ ΣΚΥΡΟΔΕΜΑΤΟΣ, 21 ÷ 23 Οκτωβρίου 2009, Κύπρος, [www.tee.gr/Διεθνείς Σχέσεις/Συνέδρια-Εκδηλώσεις](http://www.tee.gr/Διεθνείς_Σχέσεις/Συνέδρια-Εκδηλώσεις)

HYDRO 2009 Progress - Potential - Plans, Lyon, France, 26-28 October 2009, [www.hydropower-dams.com](http://www.hydropower-dams.com)

EUROCK'2009 Rock Engineering in Difficult Ground Conditions - Soft Rocks and Karst, 29 - 31 October 2009, Dubrovnik-Cavtat, Croatia, [www.eurock2009.hr](http://www.eurock2009.hr)

Submarine Mass Movements and Their Consequences, 4th International Symposium, Austin, Texas, November 8 - 11, 2009, [www.beg.utexas.edu/indassoc/dm2/Conference2009](http://www.beg.utexas.edu/indassoc/dm2/Conference2009)



**2<sup>nd</sup> International Conference  
Geosynthetics Middle East  
Waterproofing Systems and Reinforced Structures  
10 and 11 November 2009, Dubai / UAE  
[www.skz.de](http://www.skz.de)**

This conference on geosynthetics will bring together geotechnical and environmental engineers, designers, consultants, manufacturers, distributors, researchers and environmental agencies. This event with accompanying exhibition provides a highly attractive international meeting point for exchange of experience and knowledge regarding geosynthetic materials, research and design, engineering constructions, case histories and field experience.

The key topics of this conference will be devoted to geoenvironmental and geotechnical projects such as the lining of reservoirs, ponds, tunnels, landfills as well as construction of retaining walls and marine structures in the Middle East.

The conference is jointly organized by SKZ, Germany and BMC Gulf, UAE and provides a podium for new interesting cooperations for future success.



12th International Conference of ACUUS «Using the Underground of Cities: for a Harmonious and Sustainable Urban Environment», November 18-19, 2009, Shenzhen City (China), [www.acuus.qc.ca/coming.html](http://www.acuus.qc.ca/coming.html)

6th WBI-International Shortcourse «Rock Mechanics, Stability and Design of Tunnels and Slopes», November 26 to 30, 2009, Christmas market time, WBI - head office, Aachen, Germany, [www.wbionline.de](http://www.wbionline.de)

5<sup>th</sup> Colloquium "Rock Mechanics - Theory and Practice" with "Vienna-Leopold-Müller Lecture", November 26th and 27th, 2009, [christine.cerny@tuwien.ac.at](mailto:christine.cerny@tuwien.ac.at)

Stuva Tagung'09 – Stuva Conference'09 "Tunnels – Key to Sustainable Mobility", 1-3 December 2009, CCH Hamburg, Germany, [www.stuva.de/STUVA-Conference-09.tagung.0.html?&L=1](http://www.stuva.de/STUVA-Conference-09.tagung.0.html?&L=1)

International Symposium on Geotechnical Engineering, Ground Improvement, and Geosynthetics for Sustainable Mitigation and Adaptation to Climate Change including Global Warming, 3 to 4 December 2009, Bangkok, Thailand, [www.set.ait.ac.th/acsiq/conference](http://www.set.ait.ac.th/acsiq/conference)

International Symposium on Ground Improvement Technologies and Case Histories (ISGI09), 9 to 11 December 2009, Singapore, [ISGI09@nus.edu.sg](mailto:ISGI09@nus.edu.sg)



**December 9 – 11, San Francisco, USA  
[www.atc-sei.org](http://www.atc-sei.org)**

Buildings are the backbone of the world's infrastructure - they house our families and businesses, provide emergency shelter, provide places for education, enable our industries,



and bring about an improved standard of living for people throughout the world. Without this backbone, civilization doesn't exist. Each year buildings and other structures are designed and built with a continually improving understanding of their performance during earthquakes, yet the vast majority of structures were built with substantially less understanding of seismic actions than we currently possess.

The challenges to improving the seismic performance of existing buildings and other structures are as broad and varied as the individual structures themselves. How should they be evaluated and strengthened? What plans exist? What materials were used? What assumptions were made? Were they built as designed, and if not, what modifications were made but possibly (probably) not documented?

This inaugural conference, organized by the Applied Technology Council and the Structural Engineering Institute of the American Society of Civil Engineers (ASCE), is dedicated solely to improving the seismic performance of existing buildings and other structures. The program is being planned to provide a forum for the presentation and exchange of new information on the seismic evaluation and seismic rehabilitation of existing buildings, including case studies, new discoveries, innovative use of new technologies and materials, implementation issues, needed improvements to existing standards and methods, and socio-economic issues. The goal is to provide an invaluable opportunity to advance your understanding of the tools, techniques and innovations available to assist you in meeting the challenges of seismic evaluation and rehabilitation. For those new to the profession, the conference will also provide an opportunity to get up to speed on core issues.

Whether you're a practicing engineer, an architect, involved with research or teaching, make plans now to attend and participate in this premiere event. With 42 states having some degree of earthquake risk and 18 of those having areas of high or very high seismicity, meeting the needs of our clients by solving the challenges posed by existing structures is paramount to protecting the life, safety and welfare of the general public.

Conference Manager: Vicki Johnson (703) 532 3166 or [vicki@vjmeetings.com](mailto:vicki@vjmeetings.com)

For Additional Questions please email us at: [atc@atcouncil.org](mailto:atc@atcouncil.org)



13<sup>th</sup> International Conference on Structural & Geotechnical Engineering, Cairo, Egypt, 27-29 December 2009, [www.icsqe2009.com](http://www.icsqe2009.com)

GeoFlorida - Advances in Analysis, Modeling & Design, February 20-24, 2010, West Palm Beach, Florida, USA [content.asce.org/conferences/geoflorida2010/index.html](http://content.asce.org/conferences/geoflorida2010/index.html)

CAVING 2010 Second International Symposium on Block and Sublevel Caving, 20 - 22 April 2010, Perth, Australia, [www.caving2010.com](http://www.caving2010.com)

CPT'10 2<sup>nd</sup> International Symposium on Cone Penetration Testing, May 9 - 11, 2010, Huntington Beach, California, USA.

ITA - AITES 1010 World Tunnel Congress and 36<sup>th</sup> General Assembly "TUNNEL VISION TOWARDS 2020", Vancouver, Canada, May 14 - 20, 2010, [www.wtc2010.org](http://www.wtc2010.org)

12<sup>o</sup> Διεθνές Συνέδριο της Ελληνικής Γεωλογικής Εταιρείας, Πάτρα, 19 - 22 Μαΐου 2010 [www.synedra.gr](http://www.synedra.gr)



**78th ICOLD ANNUAL MEETING & INTERNATIONAL SYMPOSIUM "DAMS AND SUSTAINABLE WATER RESOURCES DEVELOPMENT"**  
**23 - 26 May 2010, Hanoi, Vietnam**  
[www.vncold.vn/icold2010](http://www.vncold.vn/icold2010)

It is our greatest pleasure to invite you to the 78th ICOLD Annual Meeting to be held in Hanoi, Vietnam from May 23<sup>th</sup> to 26<sup>th</sup>, 2010.

Vietnam is a South - Eastern Asia country of 331,000 km<sup>2</sup> territory and 86 millions population. The country's mountainous topography (three-quarters are mountains and hills) and tropical monsoon climate profoundly affect the quantity and distribution, timely and spacially, of water. The mountainous landscape, which offers substantial potential for hydropower and water storage, but also promotes rapid flood concentrations in the wet seasons and intensifies soil erosion.

The flooding is the most serious natural disaster and causes heavy inundation of alluvial plains and deltas, where most of the big cities, and important economic centers of the country are located. The dry seasons causes water shortages and serious drought, which threaten the water supply and living conditions of millions of people, their environment, agriculture, aquaculture and other economic conditions. Vietnam is also among the most vulnerable countries affected by climate change. Construction of dams and multipurpose reservoirs is of major importance to Vietnam's water strategy for flood control, power generation, irrigation and water supply.

It is a great honour for us to host the 78th ICOLD Annual Meeting including the Symposium on the subject of "Dams and Sustainable Water Resources Development".

Attending the Meeting you will not only participate in the presentations and discuss advances in dam & water technology but also enjoy many natural wonders and cultural events. You will find the Vietnamese people hard-working, peace-loving and very friendly and on the way to development and global integration. Hanoi, our capital city with the title "City of Peace" awarded by UNESCO, will be celebrating its 1000 year anniversary in 2010.

We would like to express our deep appreciation to the ICOLD leaders and country members for their strong support in holding the 78th ICOLD Annual Meeting in Hanoi.

We look forward to welcoming all of you in Hanoi in 2010 with our traditional hospitality.

**MAIN TOPICS**

- Hydrology, Sustainable Water Resources Planning, River Basin



- Coastal Areas & Climate Change Impacts
- Environmental & Social Aspects
- Flood & Drought Mitigation
- Innovation in Dam Construction
- Dam Safety, Maintenance & Rehabilitation
- Downstream & Estuary Works
- Financial Aspect & Cost Reduction of Dam Investment
- Advanced Construction Materials
- Computational Modelling of Dams & Structures
- Advanced Structural Engineering
- Geotechnics & Foundation Treatment
- Hydropower Construction & Equipment
- Optimum Exploitation of Reservoirs
- Sedimentation Management
- Irrigation & Drainage, Water System Management
- Urban, Industrial & Rural Water Supply
- Pumps & Hydraulic Equipments
- Education Tools & Capacity Promotion of Hydro Engineers

#### Organizing Board

Chairman: Prof. Dr(sr). PHAM HONG GIANG

Chairman of the Vietnam National Committee on Large Dams & Water Resources Development

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IX International Conference on Geosynthetics, Guarujá, Brazil, 23 – 27 May 2010 - [www.igsbrasil.org.br/icg2010](http://www.igsbrasil.org.br/icg2010)

Fifth International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics and Symposium in Honor of Professor I. M. Idriss, May 24 – 29, 2010, San Diego, California, USA, [5geoeqconf2010.mst.edu](http://5geoeqconf2010.mst.edu)

11<sup>th</sup> International Conference "Geotechnical Challenges in Urban Regeneration", 26<sup>th</sup> – 28<sup>th</sup> May 2010, ExCel London, [www.geotechnicalconference.com/page.cfm/Link=20](http://www.geotechnicalconference.com/page.cfm/Link=20)

Tenerife 2010 Cities on Volcanos, 3rd International Workshop on Rock Mechanics and Geo-engineering in Volcanic Environments, Canary Islands, 31st of May and 1st of June 2010, [www.citiesonvolcanoes6.com](http://www.citiesonvolcanoes6.com)

BRATISLAVA 2010 14<sup>th</sup> Danube-European Conference on Geotechnical Engineering, Bratislava, Slovakia, 2<sup>nd</sup> – 4<sup>th</sup> June 2010, [www.decqe2010.sk](http://www.decqe2010.sk)

NUMGE 2010 7th European Conference on Numerical Methods in Geotechnical Engineering June 2 - 4, 2010, Trondheim, Norway, [www.ivt.ntnu.no/numge2010](http://www.ivt.ntnu.no/numge2010)

2010 MOSCOW - International Geotechnical Conference GEOTECHNICAL CHALLENGES IN MEGACITIES, 7 – 10 June 2010, Moscow, Russia [www.GeoMos2010.ru](http://www.GeoMos2010.ru)

International Conference Underground Construction Prague 2010 Transport and City Tunnels, 14 – 16 June 2010, Prague, Czech Republic, [www.ita-aites.cz](http://www.ita-aites.cz)

Rock Mechanics in Civil and Environmental Engineering, European Rock Mechanics Symposium (EUROCK 2010) ISRM Regional Symposium on Rock Mechanics, Lausanne, Switzerland, 15 – 18 June 2010, [lmr.epfl.ch](http://lmr.epfl.ch)

7th International Conference on Physical Modelling in Geotechnics, Zurich, Switzerland, 28 June - 1 July 2010, [www.icpmq2010.ch](http://www.icpmq2010.ch)

ER2010 Earth Retention Conference 3, August 1 – 4 2010, Bellevue, Washington, USA, [content.asce.org/conferences/er2010](http://content.asce.org/conferences/er2010)

Isap Nagoya 2010 - The 11<sup>th</sup> International Conference on Asphalt Pavements, August 1 to 6, 2010, Nagoya, Japan, [www.isap-nagoya2010.jp](http://www.isap-nagoya2010.jp)

ISRS V The 5<sup>th</sup> International Symposium on In-Situ Rock Stress, August 25-27, Beijing, China, [www.rockstress2010.org](http://www.rockstress2010.org)

14th European Conference on Earthquake Engineering, Ohrid, FYROM, August 30 – September 3 2010, [www.14ecee.mk](http://www.14ecee.mk)

Geologically Active 11th IAEG Congress, 5 – 10 September 2010, Auckland, New Zealand, [www.iaeg2010.com](http://www.iaeg2010.com)

International Symposium on Geomechanics and Geotechnics: From Micro to Macro 10 – 12 October 2010, Shanghai, China, [geotec.tongji.edu.cn/is-shanghai2010](http://geotec.tongji.edu.cn/is-shanghai2010)

11<sup>th</sup> International Symposium on Concrete Roads, Seville (Spain) 13th - 15th October 2010, [www.2010pavimentosdehormigon.org](http://www.2010pavimentosdehormigon.org)



### 3rd International Symposium on Geosynthetic Clay Liners

15 - 16 September 2010, Würzburg, Germany

The 3rd International Symposium on Geosynthetic Clay Liners will be held at the Fortress Marienberg in Würzburg, Germany from 15 till 16 September 2010.

The Symposium will include oral and poster presentations on the topics mentioned below. Abstract and papers for that presentations are invited.

GBR-C 2k10 will be organised by SKZ and will be held under the auspices of the IGS. The Scientific Committee is formed by Robert M. Koerner, P.E. (USA), Nathalie Touze-Foltz (France), Helmut Zanzinger (Germany)

#### Symposium Themes

The Symposium will deal with the following topics:

- Application / case studies
  - Landfills
  - Canals
  - Reservoirs / Dams



- Transportation Infrastructure
- Durability / Lifetime
- Laboratory testing
- Performance
  - Cation exchange
  - Desiccation
  - Experience from excavation
- Regulations / Approvals

Important Dates : Deadline of Abstract Submission: 30 September 2009

For more Information : E-mail: [gbr-c2k10@skz.de](mailto:gbr-c2k10@skz.de) no



ARMS – 6 ISRM International Symposium 2010 and 6<sup>th</sup> Asian Rock Mechanics Symposium “Advances in Rock Engineering”, New Delhi, India, 23 – 27 October 2010, [www.cbip.org](http://www.cbip.org)

ISFOG 2010 2<sup>nd</sup> International Symposium on Frontiers in Offshore Geotechnics, 8 – 10 November 2010, Perth, Western Australia, [w3.cofs.uwa.edu.au/ISFOG2010](http://w3.cofs.uwa.edu.au/ISFOG2010)

6ICEG 2010 - Sixth International Congress on Environmental Geotechnics, November 8 - 12, 2010, New Delhi, India [www.6iceg.org](http://www.6iceg.org)

5<sup>th</sup> International Conference on Earthquake Geotechnical Engineering, Santiago, Chile, 17 – 20 January 2011, [www.5icege.cl](http://www.5icege.cl)

International Conference on Tunnelling and Trenchless Technology, 1-3 March 2011, Kuala Lumpur (Malaysia), [www.iem.org.my/external/tunnel/index.htm](http://www.iem.org.my/external/tunnel/index.htm)

WTC2011 Helsinki, AITES-ITA 2011 World Tunnel Congress and 37<sup>th</sup> General Assembly, 21-25 May 2011, Helsinki, Finland, [www.ril.fi/web/index.php?id=641](http://www.ril.fi/web/index.php?id=641)

XIV Asian Regional Conference Soil Mechanics and Geotechnical Engineering, Hong Kong, China, 23 - 28 May 2011

XV African Regional Conference on Soil Mechanics and Geotechnical Engineering Maputo, Mozambique, 13 - 16 June 2011.

XV European Conference on Soil Mechanics and Geotechnical Engineering, 12 – 15 September 2011, Athens, Greece, [www.athens2011ecsmge.org](http://www.athens2011ecsmge.org)

24<sup>th</sup> WORLD ROAD CONGRESS, 25 – 30 September 2011, Mexico City, Mexico

XIV Panamerican Conference on Soil Mechanics and Geotechnical Engineering (October) & V PanAmerican Conference on Learning and Teaching of Geotechnical Engineering & 64<sup>th</sup> Canadian Geotechnical Conference, Toronto, Ontario, Canada, 2 - 6 October 2011

Beijing 2011, 12<sup>th</sup> International Congress on Rock Mechanics, 16 – 21 October 2011, Beijing, China, [www.isrm2011.com](http://www.isrm2011.com)



# ΠΡΟΣΦΟΡΑ ΘΕΣΕΩΝ ΓΙΑ ΕΡΕΥΝΗΤΙΚΕΣ ΔΡΑΣΤΗΡΙΟΤΗΤΕΣ

Ο καθηγητής Francesco Silvestri του Πανεπιστημίου "Federico II" της Napoli έστειλε την παρακάτω ανακοίνωση:

Dear all

Find attached an announcement of a fellowship for the PhD program on 'seismic risk' at the University of Napoli, reserved to a foreign applicant.

Should you know some young graduated student interested in the application, please forward this information. Please note that the deadline is next September, 2nd.

I will be in vacation till august 24, but I will periodically look to the e-mail if you need some additional info.

Please forward this information to anyone else potentially interested.

Best regards

Francesco

-----  
Prof. Ing. Francesco Silvestri  
Dipartimento di Ingegneria Idraulica, Geotecnica ed Ambientale  
Facoltà di Ingegneria  
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Περισσότερες πληροφορίες από την ιστοσελίδα:  
<http://www.unina.it/studentididattica/postlaurea/dottorato/en/index.jsp>

Università degli Studi di Napoli Federico II  
Research Doctorate (PhD) in Seismic Risk



We seek talented international students  
for our PhD program in Seismic Risk  
**Fellow support is available**

The main objective of the PhD course in Seismic Risk is the formation of highly qualified researchers, capable to approach the problems of Seismic Risk mitigation with proper physical and mathematical background and with a deep knowledge of the following matters:

- Integrated systems of environmental monitoring
- Detection and analysis of seismic sources
- Physics of seismic sources
- Tectonics
- Geotechnics
- Seismic engineering
- Land use planning



**CONTACTS**

- Coordinator: Prof. Aldo Zollo  
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- Secretary: Guido Celentano  
[guido.celentano@na.infn.it](mailto:guido.celentano@na.infn.it)



The University of Naples Federico II is a large and prestigious research university funded in 1224 and located in Naples, Italy

Further information are available at the web address: [www.unina.it/studentididattica/postlaurea/dottorato/en/index.jsp](http://www.unina.it/studentididattica/postlaurea/dottorato/en/index.jsp)



# ΝΕΑ ΑΠΟ ΤΙΣ ΔΙΕΘΝΕΙΣ ΓΕΩΤΕΧΝΙΚΕΣ ΕΝΩΣΕΙΣ



## INTERNATIONAL COMMISSION ON LARGE DAMS

Ο Πρόεδρος της Ελληνικής Επιτροπής Μεγάλων Φραγμάτων και μέλος της ΕΕΕΕΓΜ Κώστας Αναστόπουλος συμμετείχε, ως Εκπρόσωπος της Ελληνικής Επιτροπής, στην 77<sup>η</sup> Ετήσια Συνάντηση - 23<sup>ο</sup> Συνέδριο της ICOLD στη Brasilia. Στα πλαίσια της Ετήσιας Συνάντησης πραγματοποιήθηκε ψηφοφορία μεταξύ των Εθνικών Αντιπροσώπων, και εξελέγη νέος Πρόεδρος της ICOLD ο Κινέζος υποψήφιος κ. Jia Jinsheng.



# ΕΝΔΙΑΦΕΡΟΝΤΑ

## «ΚΑΤΑΡΡΕΥΣΗ» ΠΟΛΥΟΡΟΦΟΥ ΚΤΙΡΙΟΥ ΣΤΗΝ SHANGHAI, ΚΙΝΑ

Μία υπό κατασκευή 13-όροφη πολυκατοικία «κατέρρευσε» (toppled) στις 27 Ιουνίου 2009 κατά την διάρκεια εργασιών για την κατασκευή υπογείου χώρου στάθμευσης στο γειτονικό οικόπεδο. Στη συνέχεια παρουσιάζονται τρεις σχετικές ανταποκρίσεις, μια αρχική από την ημερήσια ηλεκτρονική ενημέρωση της ASCE SmartBrief της 10.07.2009 και δύο του μέλους της ΕΕΕΕΓΜ Δρ. Κώστα Σουφλή, Head, Water / Industry / Environment, WS Atkins International Ltd. Στην δεύτερη δίνεται και λεπτομερής αιτιολόγηση της αστοχίας.

ASCE SmartBrief 10.07.2009

### **Soil appears to be primary culprit in Shanghai building collapse**

A 13-story apartment building under construction in Shanghai collapsed after workers excavated dirt to build a parking structure nearby. Some experts say the excavated dirt may have compacted the soil, causing the building's foundation to shift. "It's clear that if there had been no pile of dirt, there would have been no problem," said engineer Fan Qingguo, of the state-run Shanghai Construction Group. [The Journal of Commerce \(Canada\)/DCN News Services](#) (July 7, 2009)



### **Soil conditions investigated as cause of Shanghai apartment building collapse**

A nearly finished 13-story apartment building in Shanghai toppled over because of piles of dirt that were excavated to build an underground parking garage, according to initial investigation results, experts say.

City officials vowed to pursue responsibility for the June 27 disaster, which killed one person and cast doubt on the safety of the scores of other projects under way in this city of 20 million. But they admit they were perplexed over how the building could have toppled over almost intact.

"When we arrived on the scene, we were very shook up. In my 46 years of work, I've never seen or heard of such a thing," said Jiang Huancheng, a prominent local engineer and professor at Shanghai's Tongji University.

The accident was an embarrassment for Shanghai, a showcase city of 20 million in the midst of a construction boom as it prepares to host the 2010 World Expo.

Jiang and other officials told reporters their study showed the suburban building's design and construction conformed with safety regulations and that more analysis is needed to pinpoint the reason why it fell over almost intact.

There are differing opinions among the experts, but the main conclusion is that the cause is a tall pile of dirt next to the building, they said.

"It's clear that if there had been no pile of dirt, there would have been no problem," said Fan Qingguo, an engineer with state-run Shanghai Construction Group.

Other experts explained that dirt excavated for the garage may have compacted the soil, causing it to shift and damage the building's foundations so that it fell over. Heavy rains and cracks in a flood wall for a nearby river also suggest problems with the soil on the site, they said.

Unusually aggressive reports by the state-controlled media have centred on possible collusion between the property developer, the contractor and others supervising the work. Earlier this week, the government said nine people were "under supervision" in connection with the investigation.

Officials in Shanghai's Minhang district, the location of the "Lotus Riverside" apartment compound where the building fell, will release results of their investigation into responsibility for the disaster later, said city government spokesman Chen Qiwei.

"We absolutely must give society and the people a clear answer," said Xie Liming, head of Shanghai's Work Safety Administration.

Κώστας Σουφλής 15.07.2009

Dear All,

To my knowledge, this is the first time that such an amazing incident has happened.

Certainly, the reasons why will be of great interest to know.

However, the incident could also provide a good case study on how bad can things turn out re foundations if one attempts to skip the basics and cut corners.

### **How comfortable would you feel in the other apartments....**

*At around 5:30am on June 27, an unoccupied building still under construction at Lianhuanan Road in the Minxing district of Shanghai city toppled over. One worker was killed.*







Κώστας Σουφλής 29.07.2009

Dear All,

Having an office of about 1,500 staff in mainland China sometimes helps us keep ahead of developments.

Here is attached a first report of the reasons why the building below toppled over despite the state's most strict supervision and quality control. Apparently, "Ofthalmostatiki" reached new heights in this particular project with spectacular results.

In the punch list there is **only one deficiency left** - management is happy about the quality - but it's an important one!

***" building is not in the correct alignment" !!!***

**Subject:** WHY METHOD STATEMENTS / RISK ANALYSIS FACTORS ARE VERY IMPORTANT

**Building Collapsed In Shanghai** (06/27/2009) ([Daqi](#))

At around 5:30am on June 27, an unoccupied building still under construction at Lianhuan Road in the Minhang district of Shanghai city toppled over. One worker was killed. According to information, a 70 meter section of the flood prevention wall in nearby Dianpu River and that may have something to do with this building collapse. But the high-resolution photos are really amazing ([China Daily](#)).

Improper construction methods are believed to be the reason of last Saturday's building collapse in Shanghai, according to a report from the investigation team. The investigation team's report said that workers dug an underground garage on one side of the building while on the other side earth was heaped up to 10 meters high, which was apparently an error in construction, according to a report on



[eastday.com](http://eastday.com), Shanghai's official news website. "Any construction company with common sense would not make such a mistake," said an expert from the investigation team.

Earlier this week, there were also reports saying that cracks on the flood-prevention wall near the building, as well as the special geological condition in the water bank area, may be part of the reason for the collapse. "These factors are not the basic reason of this accident," said the expert. Nine people linked to the building collapse, including the real estate developer, contractor and the supervisor for the project, have been put "under appropriate control", said the official Xinhua News Agency Sunday evening. Firm's ignorance led to toppling of Shanghai building, report says by Will Clem and Lillian Zhang. July 4, 2009.

An official investigation into the collapse of an unfinished building in Shanghai has said that the accident was due to the construction company's "ignorance", rather than flaws in the design or building materials. However, the report stopped short of apportioning blame, and has been criticised for failing to address key issues.

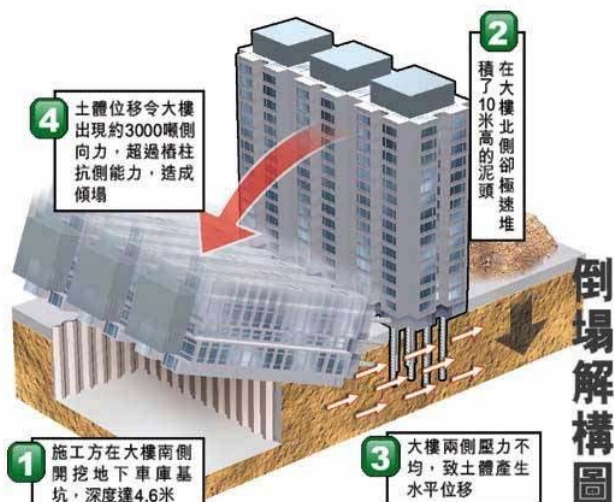
The report said the collapse was caused by earth, excavated to make a 4.6-metre deep pit for an underground car park alongside the building, being piled to depths of up to 10 metres on the other side of the structure. The weight of the pile created a "pressure differential" which led to a shift in the soil structure, eventually weakening the foundations and causing them to fail. This situation "may" have been aggravated by several days of heavy rain leading up to the collapse, but investigators would not say whether this was a crucial factor. The report said the construction company - Shanghai Zhongxin Construction - "did not consider clearly" that the earth pile could have such a devastating effect. Investigators stopped short of saying whether the company's errors were negligent or easily avoidable. However, they stressed that the building's foundations and construction materials all complied with the city's building regulations.

Huang Rong, director of the Shanghai Urban Construction and Communications Council, said inspections had shown that none of the remaining 10 apartment blocks was in immediate danger. "The surrounding buildings are now stable," he said. "The safety inspection of these homes will be the second phase of our professional team's work." Jiang Huancheng, an architect and a lead investigator for the report, said it had been an "enormous shock" to see the site for the first time. "In my 46 years in the industry, I have never seen or heard of this," he said. "To put it simply this was ignorance leading to rashness. We need to take this accident as an important lesson ... and ensure that it does not happen again."

Several days before the release of the report, Wu Hang, Mr Jiang's assistant, accused the construction company of incompetence and lacking "common sense". Mr Wu said the investigation had found there had been no structures to support the walls of the car park pit, and this had been a key factor contributing to the accident.



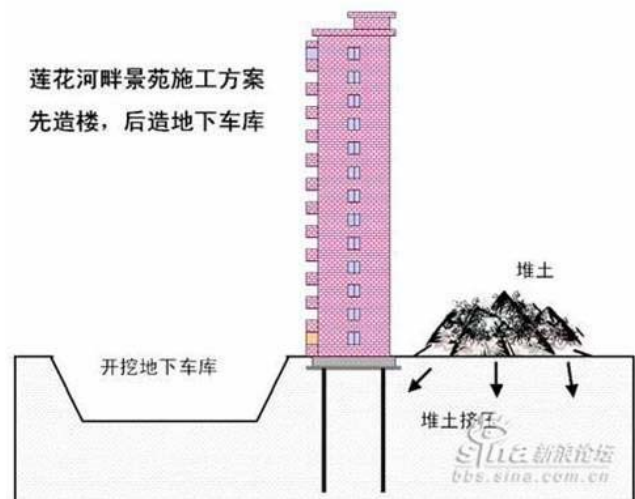
Then the plan called for an underground garage to be dug out. The excavated soil was piled up on the other side of the building.



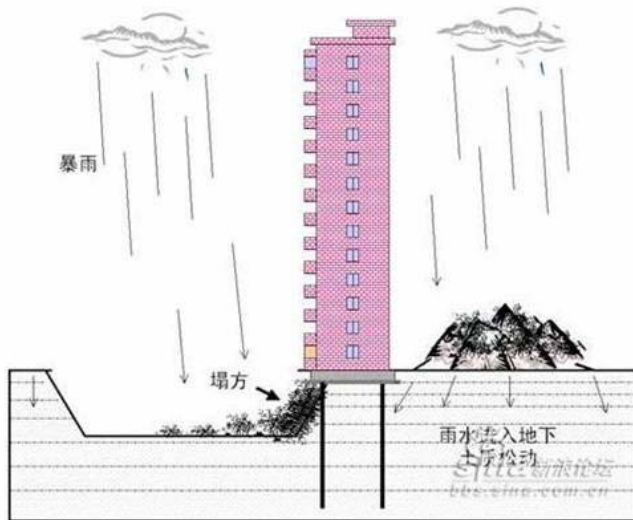
- (1) An underground garage was being dug on the south side, to a depth of 4.6 meters
- (2) The excavated dirt was being piled up on the north side, to a height of 10 meters
- (3) The building experienced uneven lateral pressure from south and north
- (4) This resulted in a lateral pressure of 3,000 tonnes, which was greater than why the pilings could tolerate. Thus the building toppled over in the southerly direction.



First, the apartment building was constructed



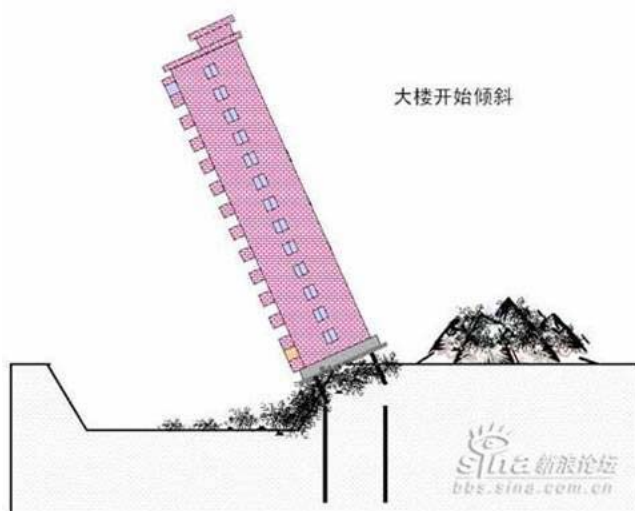




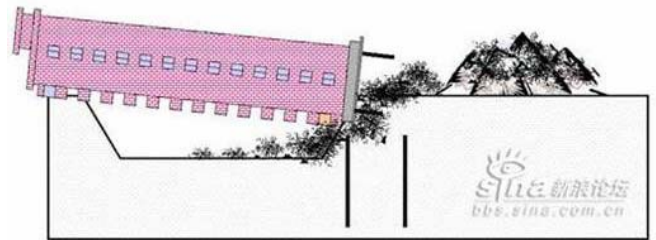
Heavy rains resulted in water seeping into the ground.



The building began to shift and the concrete pilings were snapped due to the uneven lateral pressures.



The building began to tilt.



And thus came the eighth wonder of the world.





## ΑΣΤΟΧΙΩΝ ΣΥΝΕΧΕΙΑ ...

### Two days, two accidents at New Delhi rail construction site

### Bridge collapse accident at New Delhi Metro site kills six



A partially built bridge, part of the city's new metro rail system, is collapsed in New Delhi, India, Sunday, July 12, 2009. According to police, three people died and 16 others were wounded. (AP Photo/Mustafa Quraishi)

One section of a bridge being built for the Indian capital's metro rail system collapsed Sunday, crushing to death six workers and injuring 15 in a major setback to the project that officials hope to complete before the 2010 Commonwealth Games.

Five sections of trackbed were in place on the elevated stretch running from Central Secretariat to Badarpur and a sixth was being positioned when the collapse happened, Anuj Dayal, a spokesman for the Delhi Metro Rail Corp., said yesterday.

It was the second fatal accident in nine months on the 300 billion-rupee (\$6.1 billion) project. One person died and at least 10 were injured in a similar accident in October. New Delhi's landmark metro rail project is already operating three lines and is working around the clock to build several extensions. The metro is the pride of the city, where commuters were long forced to rely on smoke-belching buses, rickety three-wheel motorized rickshaws or their own motorcycles.

The project was particularly notable because it opened on schedule about seven years ago — an almost unheard of feat in India, where corruption-related overruns are common.

E. Sreedharan, the head of the Delhi Metro Rail Corp., has been hailed as a modern-day hero, but on Sunday, he tendered his resignation to take moral responsibility for the collapse, which is a rare blemish in the largely successful project.

"This is a very, very serious accident," said Sreedharan, an official known for his integrity and dedication. He said he sent his resignation letter to New Delhi Chief Minister Sheila Dikshit, who has not yet said whether she will accept it.

The accident occurred on a particularly tricky section, where a 2.5-mile (4-kilometer) metal cantilever was being raised to attach to a long section of concrete girders, all of which tumbled down in a V-shape pile.





The area — near the tony Greater Kailash neighborhood — was cordoned off and cranes worked to clear the rubble to reopen the road underneath. A high-powered committee, comprising engineers and experts were appointed to find the cause of the accident and submit its report with 10 days, Sreedharan said.

He said two workers died at the accident site and six at the hospital. Two of the 15 hospitalized workers are in serious condition while the rest suffered minor injuries.

#### TO ATYXHMA ΔΥΣΤΥΧΩΣ ΕΙΧΕ ΚΑΙ ΣΥΝΕΧΕΙΑ ...

##### Cranes Crash at Indian Metro Bridge Accident Site



A metro rail construction site is seen after several cranes crashed in New Delhi, India, Monday (Mustafa Quraishi/AP Photo)

Three cranes crashed Monday while trying to lift a steel girder that fell at a New Delhi metro rail construction site, a new setback for the landmark project a day after another accident killed six people there.



Three cranes crashed while trying to lift a steel girder that had fallen at New Delhi's metro rail construction site, a new blow to the project a day after the first accident left six people dead

Six people sustained minor injuries in Monday's accident, Delhi Metro spokesman Anuj Dayal said.

Four truck-mounted cranes lifted the massive orange girder off the ground when one sustained a mechanical failure in its boom — the long arm used to lift weight, Dayal said.

The sudden shift of extra load caused the booms of two cranes to snap while the third crane toppled over, Dayal

said. "It was a very tricky, very difficult and dangerous operation because the space was limited," he told reporter-sLive television coverage showed two of the booms shearing off the multi-wheeled trucks. The third crane keeled over and ended up in a vertical position with its underbelly in the air.

Parts of the truck could be seen falling off the upended machine. People ran helter-skelter.

The accident happened on the southern line being constructed for the New Delhi Metro system, which already has three operational lines.

The metro is the pride of the city of 14 million, where commuters were long forced to rely on rickshaws, motorcycles or smoke-belching buses.

Sunday's accident occurred on a particularly tricky section, where a metal cantilever was being raised to lift a 300-ton prefabricated concrete segment of a bridge, Delhi Metro Rail Corp. chief E. Sreedharan told reporters.



Residents watch cranes that collapsed at a metro rail construction site in New Delhi

The entire structure tumbled down in a V-shaped pile, crushing workers underneath. Six people were killed and 13 injured.



A large multi-wheeled truck stands in a vertical position after several cranes collapsed at a metro rail construction site in New Delhi, India, Monday, July 13, 2009. Three cranes crashed Monday while trying to lift a steel girder that had fallen at New Delhi's metro rail construction site, a new blow to the project a day after the first accident left six people dead. (AP Photo/Mustafa Quraishi)



(The Associated Press - Vijay Joshi and Muneeza Naqvi, New Delhi, July 12 and 13, 2009 / MailOnline, 13 July 2009 / Bloomberg - Jay Shankar, Bangalore, July 13, 2009 / BBC 13 July 2009)



## ΚΑΙ ΟΙ ΑΣΤΟΧΙΕΣ ΔΕΝ ΕΧΟΥΝ ΤΕΛΟΣ...

ASCE SmartBrief 24.07.2009

### Collapse of Belfast-Dublin line will affect thousands of commuters



Engineers attend the collapsed railway viaduct across the Malahide estuary, south of Dublin. Driver Keith Farrelly used his emergency training to coast his train to safety over the embankment

Commuters travelling from Belfast to Dublin have been warned that they face travel chaos from today following the collapse of the railway line just north of the Irish capital.

Around 20 metres of the viaduct, which spans the Broadmeadow estuary on the outskirts of north Dublin, collapsed into the water at around 6.30pm on Friday.

A major disaster was averted as no trains were travelling over the viaduct at the moment of the collapse. But it has emerged that a 4.10pm service from Belfast Central station would have been scheduled to pass over the line at around 6pm, shortly before the collapse, while a 7pm service from Dublin to Belfast had been due to cross the viaduct a short time afterwards.

The collapse was reported by a quick-thinking train driver who raised the alarm after spotting subsidence on the track as he crossed over on Friday evening.

Irish rail company Iarnrod Eireann said it expected the line, which runs between the towns of Malahide and Donabate, to be closed for up to three months while inspections and repair work are carried out, although some reports have speculated it could be as long as 11 months following a similar accident in Cahir in 2003.

The closure will lead to major travel disruption for the thousands of passengers who use the line every day.

Pressure group Rail Users Ireland said it was "extremely concerned" following the collapse.

"This viaduct carries some of the busiest commuter trains in Ireland, it is nothing short of a miracle that the collapse did not result in a serious accident and loss of life," a statement from the group said.

"As the bridge was built, owned and maintained by Irish Rail, they must take complete responsibility for the collapse of the viaduct and the resultant disruption passengers will experience for several weeks if not months."

Irish Rail spokesman Barry Kenny said it would cost several million euros and take at least three months to repair the viaduct but this would be made more difficult by strong tides.

"The scale of the potential disaster was enormous. The fact that nobody was hurt and there wasn't a derailment doesn't take away from the fact that this was very close to being a very serious tragedy," he said.

The incident happened on the line which has seen the heaviest freight use of any railway section in the Republic, with trains weighing up to 800 tonnes taking iron ore from Tara Mines using the line in the past.

Around 90 trains a day pass over the bridge. When the bridge collapsed the railway control centre was also alerted via its computer system. The viaduct and bridge were built in the late 60s to replace a bridge built in 1848.

Mr Kenny said that different sections of railway tracks were walked three times a week; there was a major structural inspection every two years, and this particular viaduct had been inspected on Tuesday.

As well as an investigation by Iarnrod Eireann, the rail accident investigation unit of the Republic's Department of Transport was also carrying out an inquiry.

(Matthew McCreary Belfast Telegraph (Northern Ireland), 24 August 2009)



ASCE SmartBrief 24.07.2009

### Innovative foundations to cut cost, speed building of London office

A new office development in central London includes foundation designs that will cut the cost of construction. Subcontractor Expanded Piling says the solid earth caissons and settlement-reducing piles will also speed up the construction process. Experts note that placing the caissons in a rectangular block will also reduce the impact on the ruins of a Roman palace located under the existing foundation. New Civil Engineer (23 July 2009)



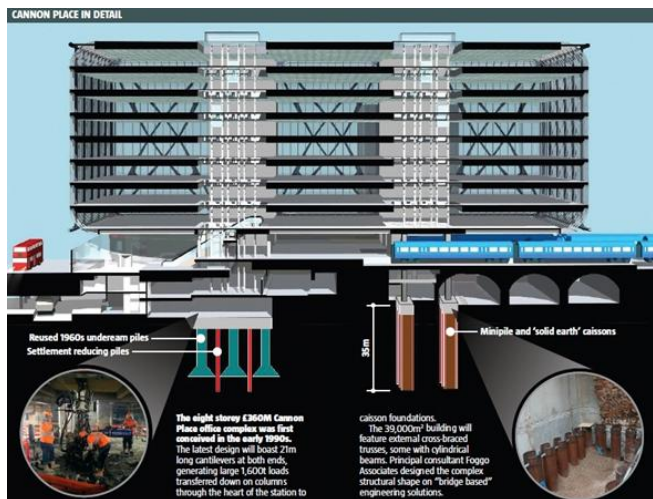
Cannon Place - Artists impression of the new building



## Geotech special: Cannon Street cunnning

Innovative foundation designs are offering substantial time and cost savings during construction of a central London office development. David Hayward reports.

At first sight, the several rigs currently sinking over 200 minipiles deep in the bowels of London's Cannon Street Station would appear to be forming conventional foundations for the new eight storey office and retail complex, now in the early stages of construction at this busy train interchange.



But a second glance at the unusual rectangular block layout of the pile groups would trigger questions from inquisitive geotechnical engineers. And the answers would doubtless release at least a muffled "wow".

### Two innovative foundation concepts

World-leading designs and cutting-edge technology head up the impressive claims from specialist subcontractor Expanded Piling and the consultant team in their description of two separate and innovative foundation concepts – rectangular "solid earth" caissons and settlement reducing piles which enable the reuse of existing foundations.

The £360M futuristic-styled Cannon Place offices, being built by main contractor Laing O'Rourke for the UK arm of American property developer Hines, will generate massive 1,600t loadings which transfer down columns, through the station's platforms to its undercroft.

To support around a third of the columns, the geotechnical team has created a novel, costsaving and relatively small alternative foundation to the original solution, which involved hand digging huge concrete caissons.

Groups of 300mm diameter minipiles have been arranged into average 3.5m long rectangular-shaped boxes each enclosing virgin London clay. This competent ground is not excavated but left undisturbed and then contained by a 1.5m thick concrete pile cap covering the entire 2.8m wide foundation box.



Up to 24, close-centred minipiles in each group work in conjunction with the block of clay they enclose to create a "solid" caisson capable of carrying the full 1,600t loading on each column.

### Victorian origins

The need for such innovative design thinking has its origins in Victorian London. Cannon Street Station was built in 1868 with a classic curved iron roof over an open, multi-arch brick viaduct, carrying rail lines from a river bridge across the nearby Thames into the heart of the train terminus.

This 140-year old viaduct remains in use today and runs above much of Expanded Piling's enclosed worksite deep beneath the station.

Offered just 2.6m headroom, the piling team must work around – but not interfere with – existing concrete columns and ground beams squeezed either side of the viaduct's brick foundations.

These old supports are the remnants of a recently demolished 1960s office block which had occupied roughly the same site that Cannon Place will above the station roof.

As a further complication, the priceless ancient walls and floor slabs of a Roman governor's palace lie buried beneath existing foundations. This scheduled ancient monument is guarded by an onsite team of five archaeologists and its presence means there are strict controls on the positioning of new foundations.

"This must be one of the most congested and restricted piling sites, above and below ground, that we have yet faced," says Expanded Piling construction manager Matt Smith. "To have formed hand-dug caissons – the original foundation proposal – would have proved very difficult if not totally impractical."

### Protecting Roman palace walls

With Laing O'Rourke as main contractor, its in-house geotechnical specialist, Expanded Piling, was brought in early during the design stage three years ago. The design team of Laing O'Rourke consultant Foggo Associates and geotechnical advisor GCG, soon rejected the hand-dug caisson option on space and health and safety grounds.

Instead it developed the minipile technology advanced by Expanded Piling's own consultant Byland Engineering. These smaller, rectangular shaped unexcavated caissons considerably reduce the impact on the various Roman palace walls.

Each caisson's 35m deep minipiles are sunk through a preassembled timber frame containing steel guide tubes.

This ensures already demanding one in 200 verticality tolerances are achieved and often bettered, offering



maximum design efficiency and added protection against damaging the important archaeology.

With piles positioned at 500mm centres, some 60% of the caisson perimeter remains undisturbed clay. The foundation resists loading largely through the shear resistance of its perimeter.

This is improved where the clay is undisturbed, creating stronger, smaller foundations compared to conventional concrete-filled caissons.

"The piles work as a group and shear loading on them is gradually transferred to the surrounding ground," explains Foggo project designer Tony Taylor.

"We believe it is the first time that piles and plugs of ground have acted together to form this caisson-style foundation."

### **Quicker, easier and safer**

Laing O'Rourke project director Andrew Veness agrees that the new-style foundations are substantially quicker, easier and safer to construct compared to hand-dug caissons. And it is claimed that the space, time and money saved through such innovative foundations have made a significant contribution to the project's overall viability.

It is providing a solution to site constraints that could otherwise have rendered the development unbuildable.

Eleven of these caissons will support 30% of the new office complex with parts of the rest carried on equally innovative foundations based on the reuse of existing, now redundant, 50 year old underream piling.

These 2.3m diameter underream piles, with vast 6m square bases, had supported Cannon Place's predecessor; the recently demolished 15-storey 1960s office block. These unused bases still monopolise the ground beneath Expanded Piling's crowded basement work site and reuse of 20 of them as foundations for Cannon Place has led to the project's second geotechnical innovation.

Although new overall loadings on these underreams will be similar, the design team was concerned that predicted settlement characteristics of some of them would be different. Its solution was to design 36m long settlement reducing piles sunk in between the underreams to carry any major load differential from the new building. This would ensure that additional movement of the reused underreams would be minor and within allowed tolerances (see box).

### **Innovation in reused foundations**

**Around half the load from Cannon Place will be supported on existing, but redundant, large underream piles.**

Miners hand excavated the 6m square bases, working at the bottom of a 2.1m diameter shaft.

These underreams were installed 50 years ago for the recently demolished 1960s office block occupying roughly the same roof area as the new building.

Reuse of these foundations was conditional on the design team ensuring that the currently unloaded underreams would neither heave nor settle unacceptably when reloaded.

Guaranteeing that they will carry roughly the same loading has led to the installation of rarely used settlement piles.

Ten of these 750mm diameter piles are being sunk alongside existing underreams and linked to them by a concrete ground beam.

Desk analysis of real loadings from the 1960s structure, and those expected from Cannon Place, highlights a roughly 300t loading increase on several foundations.

The 36m-long settlement piles are designed to carry this increased weight before loadings transfer across to each underream.

The piles have no factor of safety and are designed to limit their capacity in geotechnical terms to about 300t each.



ASCE SmartBrief 21.07.2009

### **Design to make buildings "invisible" to quakes possible, experts say**

To become resistant to earthquakes, buildings could be designed in a way that would make them "invisible" to ground vibrations, according to a team of French and British physicists. This is possible by diverting seismic waves to a cluster of concrete rings built around the building, maintaining the structure's stability during an earthquake, scientists said. [ABC News](#) (7/19)

### **'Invisible' Building Design Could Reduce Earthquake Damage**

#### **Scientists Inspired by Invisibility Cloaks That Control Flow of Light Waves Around Objects**

WASHINGTON (ISNS) -- Engineers have been developing earthquake-resistant buildings for years, but a group of physicists now believe it's possible to make an entire building effectively disappear from an [earthquake's destructive path](#), avoiding serious damage.



Physicists say it may be possible to shield a building so that earthquake vibrations are re-directed around it, avoiding serious damage.

Inspired by the recent development of [novel materials that precisely control the flow of light waves](#) around objects, they've shown that the same ideas can work whether the waves make up light, sound or earthquakes.



Earthquakes are some of the most destructive forces in nature. The waves they produce ripple across the earth's surface, much as water waves travel across the ocean. The waves from earthquakes crumple buildings, bridges, and other structures, causing millions of dollars in damage and often death.

Despite efforts to understand earthquakes and reinforce buildings against them, damage from the shaking ground is nearly impossible to avoid. But that may not be the case for long, say a team of physicists in France and the United Kingdom.

### Inspired by Invisibility Cloaks

Recently, physicists have been developing better and better invisibility cloaks, which hide an object from sight by causing incoming light waves to bend around the object, and come together behind the object.

Physicists Mohamed Farhat and Stefan Enoch of the Fresnel Institute in Marseille, France, and Sebastien Guenneau of Liverpool University in England wondered if they could use the same principles to hide an object from the destructive waves produced during an earthquake.

In a paper to be published this week in the journal *Physical Review Letters*, the three physicists show that the answer may be "yes."

Guenneau said that it's possible to shield an object, even a building, so that an incoming earthquake wave behaves as if the object weren't there. The building in the path of the wave is like a rock in a fast-flowing river, he said. "It's the same picture, the wave pattern, as for a water wave that is propagating in a river, and it's bent smoothly around the rock and will be reconstructed around the rock." The object, or building, is "invisible" to the mechanical waves.

### Shield Could Re-Direct Vibrations Around Buildings

A series of concrete rings would surround a building or other structure, forming the shield. The shield would redirect the vibration around the object inside. "Each ring is going to wobble in such a way that the wave will bend around (the object)," Guenneau said.

Earthquake waves come in varying lengths, with many peaks and troughs in a given distance, or just a few. To effectively shield a building from short and long waves that earthquakes generate, several rings could be built around a structure, each "tuned" to a different wavelength.

A 1,000 square foot house, for example, would need a circular shield with a 33-foot radius, which could be built with commercially available concrete. Guenneau suggested that the method might be used to protect a large building like a stadium, where people could seek shelter after an earthquake and be protected by the rings from possible aftershocks.

### 'Interesting' But Not There Quite Yet

Guenneau warned that there are some limits to what the cloak can accomplish. He and his colleagues could not find a way to shield a structure from the types of earthquake waves that travel below the earth's surface. He noted that surface waves are typically the most destructive in an earthquake.

Jim Beck, an earthquake engineering expert at the California Institute of Technology in Pasadena, wondered if the ring would be worth building if it couldn't protect a structure from different types of shaking, not just different wavelengths. The cloak might only work perfectly in special circumstances, he said.

"It sounds like an interesting idea, but I think there's a long way to go before they get to what they would like to see done," he said.

Guenneau said he hopes that others will take the idea and explore its promising applications. Last year, Guenneau and his colleagues made headlines by building a prototype tsunami invisibility cloak that uses ring-shaped channels to redirect water waves around an object. Now they're probing that idea further in a large-scale experiment.

### Not Science Fiction

The reality of making buildings seem invisible to the destructive forces of nature, be they the waves from earthquakes or tsunamis, "seems a bit crazy, but it's not science fiction," Guenneau said. "We gave the people the concept, now people can try to improve it to make it more tractable."

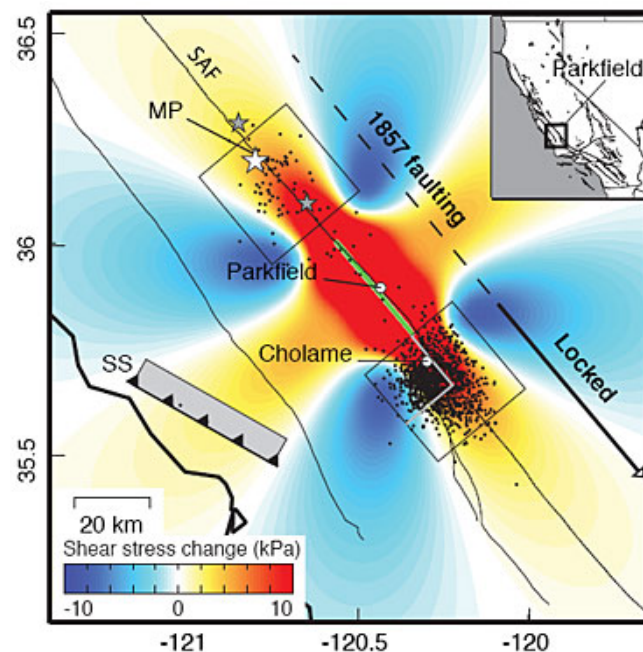
(abc NEWS Technology & Science by LAUREN SCHENKMAN, July 19, 2009)



### Tremors on southern San Andreas Fault may mean increased quake risk

By Robert Sanders, Media Relations | 09 July 2009

BERKELEY — Increases in mysterious underground tremors observed in several active earthquake fault zones around the world could signal a build-up of stress at locked segments of the faults and presumably an increased likelihood of a major quake, according to a new University of California, Berkeley, study.



Parkfield is at the northern end of a locked segment of the San Andreas Fault (SAF) that, in 1857, ruptured south from Monarch Peak (MP) in the great 7.8 magnitude Ft. Tejon quake. As a result of nearby earthquakes in 2003 and 2004, tremors developed under Cholame and Monarch Peak. The black dots pinpoint 1250 well-located tremors. The square boxes are 30 kilometers (19 miles) on a side.



Color contours give regional shear-stress change at 20 km depth from the Parkfield earthquake (green segment) along the SAF. The thrust-type San Simeon earthquake rupture is represented by the gray rectangle and line with triangles labeled SS. The currently locked Cholame segment is about 63 km long (solid portion of the arrow) and is believed capable of rupturing on its own in a magnitude 7 earthquake. The gray lines within the Cholame box bound the west quadrant, where quasiperiodic episodes predominate. (Robert Nadeau/UC Berkeley, courtesy Science magazine)

Seismologist Robert M. Nadeau and graduate student Aurélie Guilhem of UC Berkeley draw these conclusions from a study of tremors along a heavily instrumented segment of the San Andreas Fault near Parkfield, Calif. The research is reported in the July 10 issue of *Science*.

They found that after the 6.5-magnitude San Simeon quake in 2003 and the 6.0-magnitude Parkfield quake in 2004, underground stress increased at the end of a locked segment of the San Andreas Fault near Cholame, Calif., at the same time as tremors became more frequent. The tremors have continued to this day at a rate significantly higher than the rate before the two quakes.

The researchers conclude that the increased rate of tremors may indicate that stress is accumulating more rapidly than in the past along this segment of the San Andreas Fault, which is at risk of breaking like it did in 1857 to produce the great 7.8 magnitude Fort Tejon earthquake. Strong quakes have also occurred just to the northwest along the Parkfield segment of the San Andreas about every 20 to 30 years.

"We've shown that earthquakes can stimulate tremors next to a locked zone, but we don't yet have evidence that this tells us anything about future quakes," Nadeau said. "But if earthquakes trigger tremors, the pressure that stimulates tremors may also stimulate earthquakes."

While earthquakes are brief events originating, typically, no deeper than 15 kilometers (10 miles) underground in California, tremors are an ongoing, low-level rumbling from perhaps 15 to 30 kilometers (10-20 miles) below the surface. They are common near volcanoes as a result of underground fluid movement, but were a surprise when discovered in 2002 at a subduction zone in Japan, a region where a piece of ocean floor is sliding under a continent.

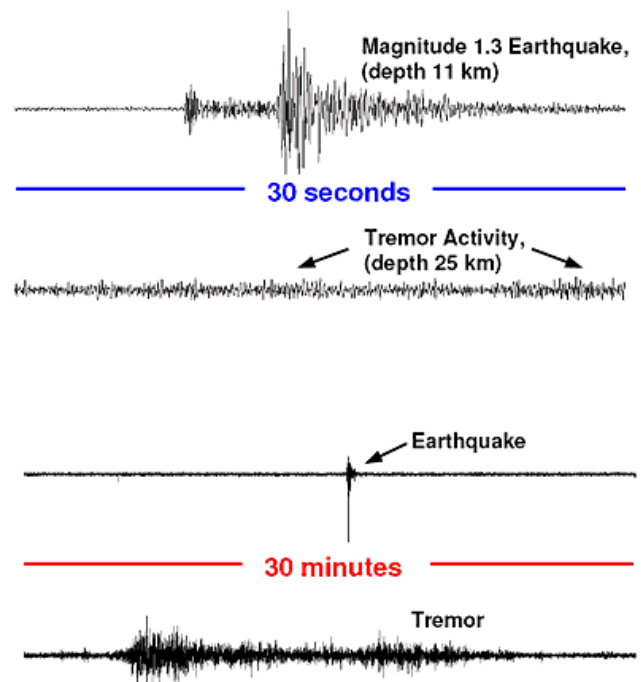
Tremors were subsequently detected at the Cascadia subduction zone in Washington, Oregon and British Columbia, where several Pacific Ocean plates dive under the North American continental plate. In 2005, Nadeau identified mysterious "noise" detected by the Parkfield borehole seismometers as tremor activity, and has focused on them ever since. Unlike the Japanese and Cascadia tremor sites, however, the Parkfield area is a strike/slip fault, where the Pacific plate is moving horizontally against the North American plate.

"The Parkfield tremors are smaller versions of the Cascadia and Japanese tremors," Nadeau said. "Most last between three and 21 minutes, while some Cascadia tremors go on for days."

Because in nearly all known instances the tremors originate from the edge of a locked zone – a segment of a fault that hasn't moved in years and is at high risk of a major earthquake – seismologists have thought that increases in their activity may forewarn of stress build-up just before an earthquake.

The new report strengthens that association, Nadeau said.

## Comparison: Earthquake and Tremor Shaking



The seismic record of an earthquake consists of an initial P wave and bigger S wave, with vibrations tapering off in less than a minute. Tremors are a constant rumbling, like a continuous 0.5 magnitude earthquake, that can go on for 20 minutes or more. (Robert Nadeau/UC Berkeley)

For the new study, Nadeau and Guilhem pinpointed the location of nearly 2,200 tremors recorded between 2001 and 2009 by borehole seismometers implanted along the San Andreas Fault as part of UC Berkeley's High-Resolution Seismic Network. During this period, two nearby earthquakes occurred: one in San Simeon, 60 kilometers from Parkfield, on Dec. 22, 2003, and one in Parkfield on the San Andreas Fault on Sept. 28, 2004.

Before the San Simeon quake, tremor activity was low beneath the Parkfield and Cholame segments of the San Andreas Fault, but it doubled in frequency afterward and was six times more frequent after the Parkfield quake. Most of the activity occurred along a 25-kilometer (16-mile) segment of the San Andreas Fault south of Parkfield, around the town of Cholame. Fewer than 10 percent of the tremors occurred at an equal distance above Parkfield, near Monarch Peak. While Cholame is at the northern end of a long-locked and hazardous segment of the San Andreas Fault, Monarch Peak is not. However, Nadeau noted, Monarch Peak is an area of relative complexity on the San Andreas Fault and also ruptured in 1857 in the Fort Tejon 7.8 earthquake.

The tremor activity remains about twice as high today as before the San Simeon quake, while periodic peaks of activity have emerged that started to repeat about every 50 days and are now repeating about every 100-110 days.

"What's surprising is that the activity has not gone down to its old level," Nadeau said. The continued activity is worrisome because of the history of major quakes along this segment of the fault, and the long-ago Fort Tejon quake, which ruptured southward from Monarch Peak along 350 kilometers (220 miles) of the San Andreas Fault.

A flurry of pre-tremors was detected a few days before the Parkfield quake, which makes Nadeau hopeful of seeing similar tremors preceding future quakes.



He noted that the source of tremors is still somewhat of a mystery. Some scientists think fluids moving underground generate the tremors, just as movement of underground magma, water and gas causes volcanic tremors. Nadeau leans more toward an alternative theory, that non-volcanic tremors are generated in a deep region of hot soft rock, somewhat like Silly Putty, that, except for a few hard rocks embedded like peanut brittle, normally flows without generating earthquakes. The fracturing of the brittle inclusions, however, may be generating swarms of many small quakes that combine into a faint rumble.

"If tremors are composed of a lot of little earthquakes, each should have a primary and secondary wave just like large quakes," but they would overlap and produce a rumble, said Guilhem.

The stimulation of tremors by shear (tearing) stress rather than by compressional (opening and closing) stress is more consistent with deformation in the fault zone than with underground fluid movement, Nadeau said. The researchers' mapping of the underground tremors also shows that the tremors are not restricted to the plane of the fault, suggesting that faults spread out as they dive into the deeper crust.

Whatever their cause, tremors "are not relieving a lot of stress or making the fault less hazardous, they just indicate a changes in stress next to locked faults," said Nadeau.

Seismologists around the world are searching for tremors along other fault systems, Guilhem noted, although tremors can be hard to detect because of noise from oceans as well as from civilization. Brief tremor activity has been observed on a few faults, triggered by huge quakes far away, and these may be areas to focus on. Tremors were triggered on Northern California's Calaveras Fault by Alaska's Denali quake of 2002, Nadeau said.

The work is supported by the U.S. Geological Survey and the National Science Foundation.

(UCBerkeleyNews, τη φροντιδι του μέλους της ΕΕΕΕΓΜ Πάνου Παναγόπουλου)



ASCE SmartBrief 18.08.2009

### **Foam blocks replacing conventional fill material**

Several Canadian highway projects are using geofoam blocks to mitigate soil shifting and decompression. For one bridge project, for example, the blocks were used to create a stable core for bridge approaches. Underground utilities have also used geofoam to keep traditional fill from settling and breaking utility lines. Daily Commercial News (18 August 2009).

Looking like gigantic sugar cubes, geofoam or EPS (expanded polystyrene) blocks are becoming a trend on large-scale bridge or highway projects in B.C. and Alberta.

It's use has grown as contractors work to bring in projects on time and on budget.

EPS is being used or has been used on the new Pitt River Bridge, the Golden Ears Bridge, the Coast Meridian Overpass, the new W. R. Bennett Bridge in B.C. and the Anthony Henday Drive Ring Road as well as the upcoming Spirit River road project in Alberta.



Expanded polystyrene blocks, also known as geofoam, are put in place during construction of a bridge overpass.

Until a decade ago, hogfuel was seen as an inexpensive lighter-weight fill material of choice, said David Harvey, senior bridge specialist for Associated Engineering responsible for the Pitt River Bridge.

However, hogfuel leachants stalled its popularity. "When you use it in a concentrated zone, you need sheathing," he said, but added that leaks still occurred and leachants reaching drainage system were found to be toxic.

Volcanic rock pumice, found in limited quantities in B.C., and also foaming concrete have been tried on smaller projects.

"The main use of geofoam is to reduce the loading of the embankment on the ground," explained Kai-sing Hui, Trow geotechnical engineer for the embankments of the Golden Ears Bridge.

When heavier fills are loaded onto a site, the soil beneath must be able to withstand the weight of the embankment.

Lower levels of soil can be squeezed laterally or water gets squeezed out.

Either way, settling can occur over time and it can be detrimental.

Slumping can also occur in the road surfaces of highways.

To help with the problems, pre-loading is often done to mitigate shifting or decompression of soils, but this delays the start of construction and settlement can still occur afterwards.

Associated's Craig Schaper, who has been involved in the Pitt River Bridge project, said that EPS on approach grades settles less as the years go by.

Geofoam is also being used more, said Schaper, because construction schedules are tighter as more projects today are design-build and contractors must finish on time.

Its popularity is "a recent phenomenon," he said.

Hui said that on the Golden Ears bridge, EPS was used for the embankments providing a stable core for the bridge approaches and more.

"We also did something a bit ingenious," he said.

Since the blocks stacked easily, the geofoam core allowed for the placement of facing, which not only provided a fire-proof seal, but an aesthetic-looking surface on three sides of the embankments.



Fire, oil and water are the drawbacks to using EPS.

Hui said to ensure the light-weight blocks don't move in a flood, part of the design includes encasing them in sufficient mineral soils to keep them in place.

Gravel fill is normally placed over the blocks to spread the load before paving is done.

The material is also used in other ways.

Geofoam has also been used to protect underground utilities from traditional fill settling and breaking lines.

In Alberta, Beaver Plastics is a major supplier to the market.

Industrial products manager Robert Vasseur said it is being used on bridge abutments on the Henday Drive Ring Road.

"The owners, a consortium, are responsible for maintaining the road (over the next 20 years before it reverts to the province)," he said.

"It is being used to create a void for future use, so if the bridge needs to be widened, they can go in and remove the geofoam and drill for the new piles," he said, adding it's much cheaper than removing fill materials.

On Alberta's Spirit River highway project there are two deep valleys that need crossing.

The blocks will provide a less costly way to build the bridge abutments compared with using fill that would have to be trucked to the area.

Work is expected to start next year.

One of B.C.'s largest suppliers of EPS is Mansonville Plastics (BC) Ltd., which has its own installation crews for projects.

"We worked on the Golden Ears Bridge and right now we are doing the Pitt River Bridge," said Nick Micono, who specializes in geofoam sales.

Crews on the Pitt River Bridge project have been working 8 p.m. to 8 a.m. over the summer months on the highly-visible project.

"They are using 20-30,000 cubic metres (of EPS) in four different locations (two on each side of the bridge)," he explained.

Mansonville crews are also working on one side of the Coast Meridian Overpass in Coquitlam and will finish the other in September.

Micono said that EPS use is gaining traction because companies are building in areas where traditionally the soil is poor, as better sites have been exhausted.

These sites require new solutions.

"You can replace one million pounds of gravel with 5,000 pounds of foam," he said.

(JEAN SORENSEN, correspondent)



**The New York Times** July 9, 2009, 11:07 am

**Russians Plan Floating Nuclear Plants** by James Kanter



O.P.K. An artist's rendering of a ship carrying twin nuclear reactors (left) supplying an oil-boring platform with electric power.

The United Industrial Corporation, a Russian manufacturer, said this week that the world's first floating nuclear power plant will go into operation on Russia's eastern coast by the end of 2012.

The manufacturer, known also as O.P.K., told Green Inc. that the first model would be used to help power Viluchinsk, a city on the Kamchatka peninsula that serves as an atomic submarine base.

O.P.K. said similar models could power other cities in northern Russia in the future. But according to nuclear experts, mining companies are likely to use Russian-built floating reactors to power operations to extract oil and gas and valuable minerals from the Arctic and other remote regions.

O.P.K. is building the plant in the shape of a ship 144 meters (472 feet) in length and 30 meters (98 feet) wide to accommodate two 35-megawatt reactors. Construction of the plant, called KLT-40C, began in February this year.

Concern Energoatom, a nuclear power plant operator, signed a contract this month to buy the first model, worth 226.8 million euros, O.P.K. said.

The cost of the reactors per kilowatt hour would be equal to building a hydropower station and "exploitation of such a particular plant will be much in demand both in industrial and developing regions," O.P.K. said.

The advantages of floating nuclear plants include maneuverability of the machines so that they can be serviced, as well as the ability to be towed near remote settlements or sites of energy-intensive industries — like water desalination — where need is greatest for electricity.

Other potential benefits include the offshore locale, away from population areas where residents might otherwise object to the presence of nuclear power.

But putting reactors at sea is likely to raise concerns about the safety in extreme weather conditions, vulnerability to terrorism, and disposal of the radioactive waste they produce.

**The New York Times** July 15, 2009, 11:09 pm

**A River Runs Under It** by Andrew C. Revkin

Yonkers Historical Society Yonkers, N.Y., diverted the Saw Mill River through a giant underground flume in the 1920s. Now, inspired by other cities' efforts to "daylight" such waterways, Yonkers is trying to unbury the river and create a greenway along its banks.

Many big cities and towns owe their existence to rivers, either because some waterway provided a transit route, water source, or hydro power for mills in the early days of industrialization. But many such communities proceeded to bury their rivers in the 20th century, both because the waters were sullied with pollution or sewage and to make room for housing, commercial buildings and — most of all — roads.

Over the last several decades, from Europe to North America and now Asia, there's been a growing movement aimed at peeling back pavement and "daylighting" buried waters.

I have a story running in The Times on one of the most remarkable such transformations — the restoration of the Cheonggyecheon in Seoul, South Korea. Through more than six centuries of settlement, the stream went from being a revered feature of the landscape to an open sewer to a buried, forgotten storm drain and now to a three-mile corridor of burbling waters, milling carp, strolling picnickers and relative quiet in one of the powerhouse metropolises of Asia. You can see a video report on that effort at the bottom of this post. The Seoul stream project was integrated with a parallel effort to take away highways and improve public transportation.



The story also discusses an ambitious effort to expose 1,900 feet of the Saw Mill River, which runs under a stretch of shops and parking lots in downtown Yonkers, a city of 200,000 abutting the Bronx. The photograph above shows the giant flume built in the early the 1920's to contain the river. From San Antonio to Singapore, there are other examples.

A community's relationship with its waterways is a reflection of its stage of development. Among other cities pursuing the restoration of buried or concrete-lined waterways are Vancouver, which once had dozens of salmon spawning runs in streams within the city limits, and Los Angeles.







# ΝΕΕΣ ΕΚΔΟΣΕΙΣ ΣΤΙΣ ΓΕΩΤΕΧΝΙΚΕΣ ΕΠΙΣΤΗΜΕΣ



## ΓΕΩΤΕΧΝΙΚΕΣ ΚΑΤΑΣΚΕΥΕΣ I - ΑΝΑΛΥΣΗ ΤΩΝ ΑΡΧΩΝ ΣΧΕΔΙΑΣΜΟΥ ΚΑΙ ΚΑΤΑΣΚΕΥΗΣ

Κωστόπουλος Σπύρος

Το βιβλίο φιλοδοξεί να είναι ένα πρακτικό βιβλίο για τους συναδέλφους που ενασχολούνται με την Γεωτεχνική Μηχανική, να είναι όμως παράλληλα και ένα συνθετικό θεωρητικό κείμενο για τους νεώτερους ή τους μελλοντικούς επιστήμονες. Απευθύνεται σε κάθε Μηχανικό που δεν θέλει να επαφίεται στις βεβαιότητες, αλλά αναζητά υπεύθυνα τον έλλογο προβληματισμό στην υλοποίηση (σχεδιασμό και κατασκευή) μιας γεωτεχνικής κατασκευής, δηλαδή κάθε έργου του Πολιτικού Μηχανικού του οποίου η επίδραση στο περιβάλλον συναρτάται ουσιαστικά με τις ιδιότητες της γεωμάζας με την οποία βρίσκεται σε μερική ή ολική επαφή ή δομείται από αυτήν.

Η προσέγγιση που επιχειρείται εδώ είναι μακροσκοπική, είναι όμως συγχρόνως κατ' εφαρμογήν αναλυτική, αλλά και εμπειρική, και αναφέρεται σε στατικές εξαιτίσεις. Κύρια προσπάθεια στην όλη σύνθεση του βιβλίου αποτέλεσε ή κριτική ανάπτυξη των βασικών αρχών και μεθόδων της Γεωτεχνικής Μηχανικής, ανάπτυξη που αντιτίθεται στην στεγνή παράθεση αναλυτικών σχέσεων, η κατά το δυνατόν αποφυγή χρήσης μη-αναγκαίων μαθηματικών προσεγγίσεων, όσο και η αναφορά σε 50 περίπου πραγματικές γεωτεχνικές κατασκευές που σχεδιάστηκαν, κατασκευάστηκαν και αξιολογήθηκαν.

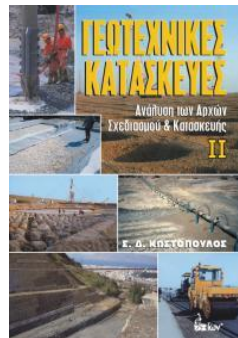
Αναγνωρίζοντας τα πλεονεκτήματα που παρέχει ή εικονογράφηση, περιλαμβάνεται στο κείμενο σημαντικός αριθμός σχεδίων, άλλων πρωτότυπων και άλλων προερχόμενων από την διεθνή βιβλιογραφία, καθώς και πάμπολλα πρακτικά παραδείγματα μέσα από τα οποία συστηματοποιείται η διαδικασία επίλυσης των προβλημάτων, ιδίως κατά τον Ευρωκώδικα EC7.

Ο πρώτος τόμος αναφέρεται στους δύο πρώτους ρόλους της γεωμάζας και περιλαμβάνει τις αρχές σχεδιασμού και κατασκευής των θεμελιώσεων (αβαθών, βαθιών και ειδικών) καθώς και των αντιστηρίξεων (τοιχών βαρύτητας, διαφράγματα αυτοφερόμενα, αγκυρωμένα και αντηριδωτά, αγκυρώσεις).

### ΠΕΡΙΕΧΟΜΕΝΑ:

Το έδαφος ως φέρον μέσον: Αβαθείς θεμελιώσεις, Βαθείς θεμελιώσεις (πάσσαλοι, φρέατα), Ειδικές θεμελιώσεις (δεξαμενές, κοιτοστρώσεις, ασταθή και διογκούμενα εδάφη, βραχοσχηματισμοί, θεμελιώσεις σε ηρανή, επιπλέουσες θεμελιώσεις). Το έδαφος ως φορτίζον στοιχείο: κατασκευές αντιστήριξης (τοιχώι βαρύτητας, διαφράγματα αυτοφερόμενα, αγκυρωμένα και αντηριδωτά, αγκυρώσεις).

(Εκδόσεις ΙΩΝ, 2008)



## ΓΕΩΤΕΧΝΙΚΕΣ ΚΑΤΑΣΚΕΥΕΣ II - ΑΝΑΛΥΣΗ ΤΩΝ ΑΡΧΩΝ ΣΧΕΔΙΑΣΜΟΥ & ΚΑΤΑΣΚΕΥΗΣ

Κωστόπουλος Δ. Σπύρος

Το βιβλίο ενασχολείται με την ανθρώπινη επέμβαση στην γη, ανατέμνοντας με κριτικό πνεύμα τις αρχές σχεδιασμού και κατασκευής που διέπουν τόσο τις μεθοδολογίες χρήσης του "εδάφους" ως υλικού κατασκευής "χωμάτων" έργων, όσο και επιλεγμένες τεχνικές επέμβασης στις in situ γεωμάζες προκειμένου να αναβαθμιστούν οι γεωτεχνικές των ιδιότητες. Γίνεται αναφορά σε περίπου 15 ελληνικές γεωτεχνικές κατασκευές που σχεδιάστηκαν, κατασκευάστηκαν και αξιολογήθηκαν, ενώ το κείμενο εμπλουτίζεται με αυστηρά επιλεγμένα οξυδερκή παραδείγματα, μέσα από αυτά τα δύο συστηματοποιείται ή διαδικασία επίλυσης των προβλημάτων στην πράξη.

Η ύλη του βιβλίου αναπτύσσεται σε 11 κεφάλαια από τα οποία το πρώτο (εισαγωγή) παρουσιάζει με ενέργεια το τεχνικό ζήτημα της επέμβασης στις γεωμάζες σύμφωνα με τις κρατούσες απόψεις, αλλά και την προσωπική οπτική του υπογραφόμενου, τα τρία ακόλουθα ενασχολούνται με τις τεχνικές που συνδέονται με τα γεωυλικά όταν αυτά χρησιμοποιούνται ως υλικά κατασκευής χωμάτων αναδομών (επιφανειακή συμπύκνωση, επιφανειακή ανάμειξη, γεωσυνθετικά), ενώ τέλος στα κεφάλαια 5 έως και 11 αναπτύσσονται διεξοδικά οι τεχνικές βελτίωσης των ιδιοτήτων της in situ γεωμάζας (αποστράγγιση, προφόρτιση, χαλικοπάσσαλοι, βαρεία τύπανση, βαθεία ανάμειξη, εδαφοηλώσεις, ενέσεις).

Για την πληρέστερη κατανόηση όλων των εκτιθέμενων θεωρήθηκε σκόπιμο να ενταχθούν στο κείμενο βοηθητικά Παραρτήματα που αφορούν την επιφανειακή συμπύκνωση, την αποστράγγιση, την ευστάθεια πράνων και κλιτύων, τους χαλικοπάσσλους, τις γεωμεμβράνες και τις εδαφοηλώσεις.

Ο δεύτερος τόμος περιλαμβάνει την ανάλυση του ρόλου της γεωμάζας ως υλικού κατασκευής "χωμάτων" έργων" καθώς και τις σύγχρονες τεχνολογίες που επηρεάζουν την δομή της γεωμάζας και βελτιώνουν τις εγγενείς γεωτεχνικές της ιδιότητες.

### ΠΕΡΙΕΧΟΜΕΝΑ:

Το έδαφος ως υλικό κατασκευής: Χωμάτινα φράγματα, επιχώματα, αναχώματα, λιμνοδεξαμενές, έρματα σιδηρ. γραμμών, ευστάθεια τεχνητών πρανών, σταθεροποίηση κατολισθήσεων, τεχνολογίες ενίσχυσης και βελτίωσης του εδάφους (συμπύκνωση αβαθής και βαθεία, προφόρτιση, οπλισμένη γη, γεωπλέγματα, ηλώσεις, ενέσεις, μικροπάσσαλοι, χαλικοπάσσαλοι, αποστραγγίσεις, χημικά πρόσθετα).

(Εκδόσεις ΙΩΝ, 2008)



## ΠΕΙΡΑΜΑΤΙΚΗ ΓΕΩΤΕΧΝΙΚΗ ΜΗΧΑΝΙΚΗ

Κωστόπουλος Δ. Σπύρος

Η φυσική πειραματική μέθοδος μετράει άνω των είκοσι αιώνων ζωής πλήρους εμπειριών, ανατροπών και πνευματικών αναζητήσεων. Η μακρά μέσα στο χρόνο συναρπαστική πο-



ρεία της Πειραματικής Μηχανικής ανατυπώνεται στο πλήθος των εφευρέσεων, των θεωριών, των στόχων και των ρευμάτων. Ακόμη συναρπαστικότερη είναι όμως η πορεία της Πειραματικής Γεωτεχνικής Μηχανικής, τα επιτεύγματα της οποίας τα τελευταία ογδόντα χρόνια συνέβαλαν ουσιαστικά στην υλοποίηση θαυμαστών τεχνικών έργων τα οποία βελτίωσαν το "ευ ζειν" του κοινωνικού συνόλου. Το ανά χείρας πόνημα στοχεύει στην επιλεκτική παρουσίαση των επιτευγμάτων του γνωστικό αυτού χώρου της εφαρμοσμένης επιστήμης, με τρόπο τέτοιο που ο αναγνώστης να είναι σε θέση όχι μόνο να πληροφορηθεί, αλλά και να εφαρμόσει έλλογα τις πειραματικές μεθόδους.

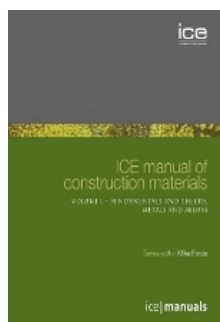
Η ύλη του βιβλίου διαχωρίζεται σε δύο βασικά μέρη, την Διασκόπηση της γεωμάζας και την Δίιχνευση της γεωμάζας και των γεωτεχνικών κατασκευών.

Το πρώτο μέρος (κεφάλαια 4 έως 8 ) περιλαμβάνει τις βασικές αρχές σχεδιασμού της διασκόπησης, τις γεωτρήσεις δειγματοληψίας, τις δοκιμαστικές εκσκαφές, τις δοκιμές εργαστηρίου και τις επί τόπου δοκιμές.

Το δεύτερο μέρος (κεφάλαια 9 έως 13) αφιερώνεται στις οργανομετρήσεις, δηλαδή στην μέτρηση βασικών γεωτεχνικών μεγεθών: της μετακίνησης, της δύναμης, της ολικής πίεσης και της πίεσης πόρων. Το τελευταίο κεφάλαιο 14 αναφέρεται στα φυσικά γεωτεχνικά προσομοιώματα, όπου γίνεται κριτική παρουσίαση της θεωρίας της ομοιότητας και των τεχνικών οργανομέτρησης γεωτεχνικών κατασκευών σε μικρή κλίμακα.

Για την πληρέστερη κατανόηση όλων των εκτιθέμενων θεωρήθηκε σκόπιμο να παρατεθεί μια εκτενής Εισαγωγή (πλαιο, τεχνικογεωλογική θεώρηση της γεωμάζας, θεμελιώδεις έννοιες της Εδαφομηχανικής και της Βραχομηχανικής), καθώς και τέσσερα παραρτήματα.

(Εκδόσεις ΙΩΝ, 2005)



### ICE Manual of Construction Materials

**Michael C. Forde, Editor**

This essential work is a single stop, comprehensive reference for practicing engineers. Written and edited by a wide selection of leading specialists in each field, the *ICE manual of construction materials* covers each of the key materials used in construction, detailing their properties and application in a civil and structural engineering context, and referencing the most up-to-date standards governing their use in construction.

*construction materials* covers each of the key materials used in construction, detailing their properties and application in a civil and structural engineering context, and referencing the most up-to-date standards governing their use in construction.

ICE manual of construction materials is an invaluable resource for practising civil and structural engineers in consulting firms, government agencies, research institutes, universities and colleges. Its highly practical approach will guide and train readers towards achieving expertise in the use of major and emerging construction materials.

#### Contents

SECTION 1 FUNDAMENTALS AND THEORY  
SECTION 2 CONCRETE  
SECTION 3 ASPHALTS IN ROAD CONSTRUCTION  
SECTION 4 MASONRY  
SECTION 5 METALS AND ALLOYS  
SECTION 6 POLYMERS

SECTION 7 POLYMER FIBRE COMPOSITES IN CIVIL ENGINEERING  
SECTION 8 TIMBER  
SECTION 9 GLASS  
SECTION 10 NON-CONVENTIONAL MATERIALS

(Thomas Telford Ltd, 27.07.2009)



### Coupled Site and Soil-Structure Interaction Effects with Application to Seismic Risk Mitigation

**Proceedings of the NATO Advanced Study Institute**

**Schanz, T. & Iankov, R. (Editors)**



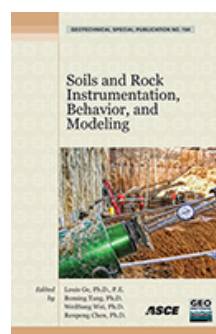
This volume covers papers presented at NATO ARW 983188 "Coupled Site and Soil-Structure Interaction Effects with Application to Seismic Risk Mitigation", held in Borovets, Bulgaria, from 30th of August to 3rd of September 2008. The main objective of the workshop was to present a state of the art on site-soil-structure-interaction effects, as manifested in the broader area of South and South-Eastern Europe, which is unquestionably the most seismically-prone region of the European continent. A second objective was to attempt a definition of the seismic risk posed to the built environment in this area and to present modern methods for seismic risk mitigation.

Papers included in this volume are grouped into four chapters: (1) Site conditions and their role in seismic hazard analyses; (2) Soil-structure-interaction; (3) The role of site effects and of soil-structure-interaction in design of structures; and (4) General and related subjects. The following subject fields are addressed: seismological aspects (near-field effects, seismic wave propagation, free-field motions); geotechnical engineering (slopes, foundations, lifelines, dams, retaining walls); structural engineering (buildings, bridges, field measurements, protective systems).

Written for:

Civil engineers, geotechnical engineers

(Springer, 2009)



### Soils and Rock Instrumentation, Behavior, and Modeling

**Geotechnical Special Publication 194**

**Wei, W., Chen, R., Ge, L. & Tang, B. (Editors)**

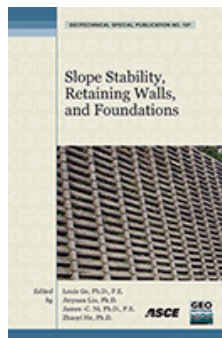
The papers in this Geotechnical Special Publication were presented at the GeoHunan International Conference: *Challenges and Recent Advances in Pavement Technologies and Transportation Geotechnics*, which took place in Changsha, Hunan, China from August 3 to 6, 2009. These peer-reviewed papers are from the session of Soils and Rock Instrumentation, Behavior and Modeling.



Hunan, one of the largest commercial provinces in China, is rapidly developing into a modern epicenter of international finance and trade. Recent construction in many parts of China has provided geotechnical engineers with great opportunities for creating cutting-edge solutions to problems involving foundations, ground improvement, slopes, excavations, and tunnels.

This proceedings will be valuable to engineers and professionals involved in many aspects of geotechnical engineering.

(ASCE, 2009)



### **Slope Stability, Retaining Walls, and Foundations**

**Geotechnical Special Publication 197**

**He, Z., Ge, L., Liu, J. & Ni, J. (Editors)**

This Geotechnical Special Publication contains 35 peer-reviewed technical papers presented at the GeoHunan International Conference: *Challenges and Recent Advances in Pavement Technologies and Transportation Geotechnics*, which took place in Changsha, Hunan, China, from August 3 to 6, 2009. This proceedings examines topics such as:

- soil stabilization
- dynamic behavior of soils and foundations
- earth retaining walls
- slope stability

This publication will be valuable to geotechnical engineering professors and students, as well as geotechnical engineers and professionals

(ASCE, 2009)

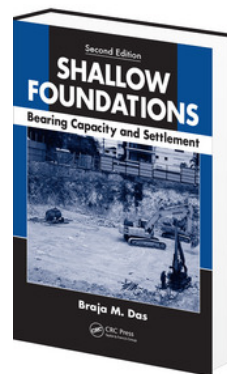


### **Rapid Load Testing on Piles**

**P. Holscher & F. A. van Tol (editors)**

To obtain data about the stiffness and bearing capacity of a foundation pile, the Rapid Load Test could be an effective and economic alternative for a static load test. In order to judge this, the influence of rate effects in clay and pore water pressures in sand should first be understood. This book presents the latest developments in the research that is carried out to unravel these effects. It contains current contributions by world wide leading academics. Moreover the editors summarize the empirical field data and discuss advanced centrifuge modeling. This indispensable information source on the progress in Rapid Load Testing is intended for researchers and professionals working on the load testing of foundation piles.

(CRC Press, Taylor & Francis Group, 01.12.2008)



### **SHALLOW FOUNDATIONS**

**Bearing Capacity and Settlement, Second Edition**

**Braja M. Das**

Considered the standard engineering reference on shallow foundations, this edition strengthens that position. Completely reworked and written by one of the top men in the field, it covers all the latest developments and approaches. Equally valuable to researchers and designers as it is to engineering students, this resource updates data and provides revised theories on the ultimate and allowable bearing capacities of shallow foundations. It adds refinements to a number of unique circumstances such as foundations on soil with geogrid reinforcement as well as bearing capacity relationships for shallow foundations subjected to eccentric and inclined loads. It also covers advances in reinforcement materials.

**Readership:** Researchers, academics, designers and graduate students in earthquake engineering, civil engineering and ocean/coastal engineering.

(CRC Press, Taylor & Francis Group, 23.02.2009)



### **Material, Design, Construction, Maintenance, and Testing of Pavement**

**Geotechnical Special Publication 193**

**X. Zha, S. Zeng, D.-H. Chen & C. Estakhri (Editors)**

This Geotechnical Special Publication contains 28 peer-reviewed papers presented at the GeoHunan International Conference: *Challenges and Recent Advances in Pavement Technologies and Transportation Geotechnics*, which took place in Changsha, Hunan, China, from August 3 to 6, 2009.

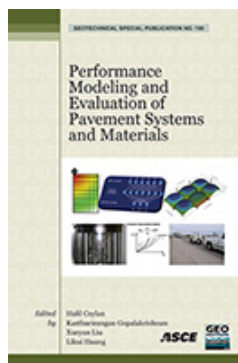
This book addresses a variety of issues in pavement engineering, along with the very latest research in areas such as materials, design, and construction. Investigations and solutions from scientists all over the world in the United States, China, Taiwan, Pakistan, Turkey, Korea, Algeria, and Saudi Arabia are included in this volume, which seeks to expand the range of tools that are available to engineers and scientists in geotechnical and pavement engineering. Topics examined in these papers include:

- warm mix asphalt
- material characterization
- pavement performance modeling
- pavement testing and evaluation



This book will be valuable to geotechnical and pavement engineers, as well as to professionals and practitioners involved in highway construction.

(ASCE, 2009)



**Performance Modeling and Evaluation of Pavement Systems and Materials (GSP 195)  
Geotechnical Special Publication 195**

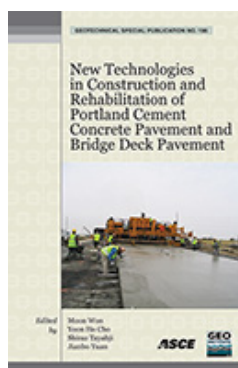
**X. Liu, L. Huang, K. Gopalakrishnan & H. Ceylon  
(Editors)**

This Geotechnical Special Publication contains 24 peer-reviewed technical papers presented at the GeoHunan International Conference: *Challenges and Recent Advances in Pavement Technologies and Transportation Geotechnics*, which took place in Changsha, Hunan, China, from August 3 to 6, 2009. The areas of research that are examined in this proceedings include:

- hot-mix asphalt constitutive modeling
- pavement responses under dynamic loading
- moisture damage and permanent deformation in asphalt concrete
- asphalt and Portland cement concrete evaluation
- pavement performance assessment

Infrastructure engineers working within transportation and geotechnical facilities with special interest in pavement constitutive modeling, performance, and evaluation will find this publication valuable.

(ASCE, 2009)



**New Technologies in Construction and Rehabilitation of Portland Cement Concrete Pavement and Bridge Deck Pavement (GSP 196)**

**Y.-H. Cho, S. Tayabji, M. Won & J. Yuan (Editors)**

This Geotechnical Special Publication contains 21 peer-reviewed technical papers presented at the GeoHunan International Conference: *Challenges and Recent Advances in Pavement Technologies and Transportation Geotechnics*, which took place in Changsha, Hunan, China, from August 3 to 6, 2009. This proceedings is divided into two sections, Innovative Techniques for Bridge Deck Pavement Design and Construction and New Analysis Techniques and Materials for Portland Cement Concrete Pavement System.

Hunan, one of the largest commercial provinces in China, is rapidly developing into a modern epicenter of international finance and trade. Recent construction in many parts of China has provided geotechnical and pavement engineers with great opportunities for creating cutting-edge solutions to problems involving highway and bridge pavements.

This publication will be valuable to geotechnical engineers and professionals, as well as construction professionals.

(ASCE, 2009)



**How Structures Work: Design and Behaviour from Bridges to Buildings**

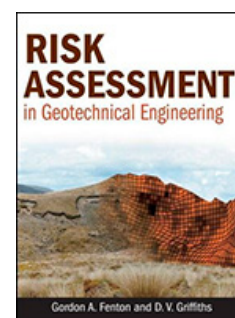
**David Yeomans**

The alliance between architecture and structural engineering is fundamental to the design of the buildings and bridges around us. Anyone who needs or wants to "understand" a building must have a good understanding of the structural concepts involved. Yet "structure" is often cloaked in mathematics – which many find difficult to get to grips with.

*How Structures Work* has been written to explain the behaviour of structures in a clear way without resorting to complex mathematics. Using the minimum of mathematics it explains the structural concepts clearly, illustrated by many historical and contemporary examples, allowing readers to build up a general understanding of structures. In this way they can easily comprehend the structural aspects of buildings for themselves.

Primarily aimed at students who require a good qualitative understanding of the behaviour of structures and their materials, it will be of particular interest to students of architecture and building surveying, plus architectural historians and conservationists. The straightforward, non-mathematical approach ensures it will also be suitable for a wider audience including building administrators, archaeologists and the interested layman.

(Wiley – Blackwell, July 2009)



**Risk Assessment in Geotechnical Engineering**

**G. A. Fenton & D.V. Griffiths**

This text presents a thorough examination of the theories and methodologies available for risk assessment in geotechnical engineering, spanning the full range from established single-variable and "first order" methods to the most recent, advanced numerical developments. In response to the growing application of LRFD methodologies in geotechnical design, coupled with increased demand for risk assessments from clients ranging from regulatory agencies to insurance companies, authors Fenton and Grif-



fiths have introduced an innovative reliability-based risk assessment method, the Random Finite Element Method (RFEM). The authors have spent more than fifteen years developing this statistically based method for modeling the real spatial variability of soils and rocks. As demonstrated in the book, RFEM performs better in real-world applications than traditional risk assessment tools that do not properly account for the spatial variability of geomaterials.

(Wiley – Blackwell, 2009)



**Recent Advancement in Soil Behavior, In Situ Test Methods, Pile Foundations, and Tunneling (GSP 192)**

**Geotechnical Special Publication 192**

**M. Tao, L. Ali, J. Yang & A. G. Correia (Editors)**

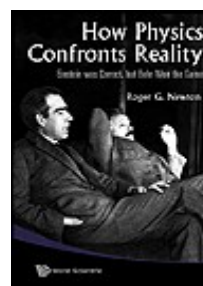
This Geotechnical Special Publication contains 44 peer-reviewed papers presented at the GeoHunan International Conference: *Challenges and Recent Advances in Pavement Technologies and Transportation Geotechnics*, which took place in Changsha, Hunan, China, from August 3 to 6, 2009.

Natural soil deposits exhibit a high degree of non-homogeneity and their geotechnical properties can change unexpectedly due to varying stress conditions. This makes soil behavior a multi-dimensional and multi-faceted phenomenon. This proceedings examines the current technological advances in geotechnical engineering, specifically with regard to soil behavior and testing methods. The papers gathered in this volume underscore the significance and validity of in situ and laboratory testing in the design of foundations, tunneling, and soil structures. The topics analyzed in this volume include:

- *soil behavior and laboratory testing*
- *in situ test methods for site characterization, design, and quality control of earth structures and subgrades*
- *pile foundations in subgrade*
- *tunnel engineering*

This publication will be valuable to geotechnical professors and students, geotechnical engineers, design engineers, contractors, and professionals involved in geotechnical engineering.

(ASCE, 2009)



**HOW PHYSICS CONFRONTS REALITY**

**Einstein was Correct, but Bohr Won the Game**

**Roger G Newton (Indiana University)**

This book recalls, for nonscientific readers, the history of quantum mechanics, the main points of its interpretation, and Einstein's objections to it, together with the responses engendered by his arguments. Most popular discussions on the strange aspects of quantum mechanics ignore the fundamental fact that Einstein was correct in his insistence that the theory does not directly describe reality. While that fact does not remove the theory's counterintuitive features, it casts them in a different light.

Context is provided by following the history of two central aspects of physics: the elucidation of the basic structure of the world made up of particles, and the explanation, as well as the prediction, of how objects move. This history, prior to quantum mechanics, reveals that whereas theories and discoveries concerning the *structure* of nature became increasingly realistic, the laws of motion, even as they became more powerful, became more and more abstract and remote from intuitive notions of reality. Newton's laws of motion gained their abstract power by sacrificing direct and intuitive contact with real experience. Arriving 250 years after Newton, the break with a direct description of reality embodied in quantum mechanics was nevertheless profound.

Contents:

- Methods Some Quantum History
- Rules and Interpretations
- Einstein's Defection
- From Atomism to Real Particles
- Laws of Motion
- Fields
- New Particles and Their Quantum Origins
- Atoms, Inside and Out
- Methods and Underpinnings

(World Scientific, July 2009)



# ΗΛΕΚΤΡΟΝΙΚΑ ΠΕΡΙΟΔΙΚΑ



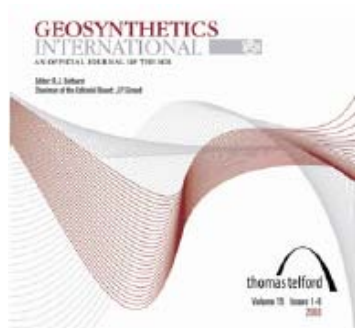
[www.geoengineer.org](http://www.geoengineer.org)

Κυκλοφόρησαν τα Τεύχη #55 και #56 του Newsletter του Geoengineer.org (Ιούλιος και Αύγουστος 2009) με πολλές χρήσιμες πληροφορίες για όλα τα θέματα της γεωτεχνικής μηχανικής. Υπενθυμίζεται ότι το Newsletter εκδίδεται από τον συνάδελφο και μέλος της ΕΕΕΕΓΜ Δημήτρη Ζέκκο ([secretariat@geoengineer.org](mailto:secretariat@geoengineer.org)).



[www.geosyntheticssociety.org](http://www.geosyntheticssociety.org)

Κυκλοφόρησε το Τεύχος Νο. 2, του Τόμου 25 του Newsletter της International Geosynthetics Society (Ιούλιος 2009).



**Geosynthetics International**  
[www.thomastelford.com/journals](http://www.thomastelford.com/journals)

Κυκλοφόρησαν τα τεύχη αρ. 2 και 3 του 16<sup>ου</sup> τόμου (2009) του περιοδικού Geosynthetics International.



**Geotextiles & Geomembranes**  
[www.geosyntheticssociety.org/journals.htm](http://www.geosyntheticssociety.org/journals.htm)

Κυκλοφόρησαν τα τεύχη αρ. 3 και 4 του 27<sup>ου</sup> τόμου (Ιούνιος και Αύγουστος 2009) του περιοδικού Geotextiles & Geomembranes.



## **ΕΕΕΕΓΜ**

Τομέας Γεωτεχνικής  
ΣΧΟΛΗ ΠΟΛΙΤΙΚΩΝ ΜΗΧΑΝΙΚΩΝ  
ΕΘΝΙΚΟΥ ΜΕΤΣΟΒΙΟΥ ΠΟΛΥΤΕΧΝΕΙΟΥ  
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«ΤΑ ΝΕΑ ΤΗΣ ΕΕΕΕΓΜ» «αναρτώνται» και στην ιστοσελίδα [www.hssmge.gr](http://www.hssmge.gr)