Slovenská spoločnosť pre mechaniku pri SAV
Ústav stavebníctva a architektúry SAV
STU v Bratislave, Stavebná fakulta STU

POZVÁNKA

na vedeckú prednášku

Vážený pán / Vážená pani,

pozývame Vás na vedeckú prednášku:

Prof. Benny Y. C. Hon, PhD.

Department of Mathematics, City University of Hong Kong

Local Kernel-Based Approximation Method for solving Inverse and Large Scale Problems

Prednáška sa uskutoční dňa **3.6.2013 o 13,30 hod., v knižnici Katedry stavebnej mechaniky (blok A),** na Stavebnej fakulte STU v Bratislave**,** Radlinského 11, 813 68 Bratislava.
Prednáška bude vysielaná v priamom prenose študentskou televíziou STU na: www.mc2.sk

Tešíme sa na stretnutie s Vami.

Prof. Ing. Milan Sokol, PhD.
Predseda Spoločnosti pre mechaniku pri SAV

Prof. RNDr. Vladimír Sládek, DrSc.
Ústav stavebníctva a architektúry SAV

V Bratislave, 28.5.2013

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Professor Hon received his Ph.D. in Applied Mathematics from the University of Louisiana at Lafayette, USA. He is presently the Professor of the Department of Mathematics, City University of Hong Kong, Hong Kong and is serving as an associate editor for the Journal of Inverse Problems in Science and Engineering and member on the editorial board for six research journals. His research interests include meshless computational methods, inverse problems, symbolic computation and gifted education. He has published over 120 research articles in the academic journals.

Local Kernel-Based Approximation Method for solving Inverse and Large Scale Problems.

In this talk we present the development of meshless computational method based on the use of kernel-based functions for solving various physical problems. Properties of some special kernels such as radial basis functions; harmonic kernels; fundamental and particular solutions; and Green's functions will be discussed. For tackling the well known ill-conditioned resultant system of equations, the method has recently been localized so that application to large scale engineering and industrial problems is now feasible. The method requires only a set of nodes in the domain and on the boundary from which all governing equations are solved in strong formulation without the need of tedious integrations. The refinement and redistribution of the nodes in adaption to moving boundary or rapid changing gradients in field variables can efficiently be made. The method is proven to be efficient; accurate; and easy to code. For solving inverse (and hence ill-posed) problems, we will present the recent successful combination of the kernel-based approximation method with fundamental solutions; Laplace transform and Tikhonov regularization techniques to solve some inverse problems such as Cauchy and backward problems of Time-Fractional Order Partial Differential Equations.