Design+Analysis
VISITING LECTURE

Enhanced incomplete Cholesky factorization

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Abstract. Incomplete Cholesky factorizations represent an important class of preconditioners for solving large-scale sparse symmetric positive-definite linear systems of equations. Over the last 60 years or so, many different types of incomplete factorization methods have been developed. Some of them were inspired by particular applications and some intended to be more general-purpose.

In this talk, we consider two important ideas that were introduced over time: the Jennings-Malik modification (1977) and the Tismenetsky decomposition (1991). We explore their theoretical and practical similarities and differences. Based on our observations, we propose a new implementation of the incomplete Cholesky factorization that uses a limited memory approach. Extensive numerical experimentation appears to confirm that the developed technique may be a method of choice in various practical applications. The proposed algorithm is implemented as a new package **HSL_MI28** for the HSL mathematical software library.

Monday 11th November 2013 at 12 am
Lecture hall R2, Rakentajanaukio 4 A, Otaniemi, Espoo

We wish you warmly welcome!

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Design+Analysis VISITING LECTURES target for presenting and discussing a diverse collection of topics related to computational structural engineering and building information modeling in the context of architectural and industrial design and engineering – focusing on models, methods, analysis, simulation and computing as well as software applications. Lectures are organized by assistant professors Jarkko Niiranen and Vishal Singh, Aalto University Department of Civil and Structural Engineering.

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