



Vortrag im Gästeprogramm des GRK 2075

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Coupled Problems Solution by Operator Split Methods

Dienstag, 29.11.2016, 10.00 Uhr
Institut für Wissenschaftliches Rechnen, Raum 812
Mühlenpfordtstrasse 23, 38106 Braunschweig

The goal to provide an efficient approach to development of software computational platform is of very large interest for currently very active research domain of multiphysics and multiscale analysis in fully nonlinear setting. The typical problem to be solved is nonlinear evolution problem, with different scales in space and time (Ibrahimbegovic 2005, 2009, 2016). We show here that a successful solution to such a problem requires gathering the sound theoretical formulation, the most appropriate discrete approximation and the efficient numerical implementation. In particular, the most efficient numerical implementation is obtained by reusing the existing codes, in order to accelerate the code development and validation.

REFERENCES

- Ibrahimbegovic A. (2016), 'Computational Methods for Solids and Fluids: Multiscale Analysis, Probability Aspects and Model Reduction', Springer, Berlin, 1-493.
Ibrahimbegovic A. (2009), 'Nonlinear solid mechanics: theoretical formulations and finite element solution methods', Springer, Berlin, 1-571.
Ibrahimbegovic A., B. Brank (2005), Multi-physics and multi-scale computer models in nonlinear analysis and optimal design of engineering structures under extreme conditions, IOS Press, Amsterdam, 1-407.

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