

3rd National Conference on Computational Mechanics 2005

(MekIT 2005)

**Trondheim, Norway
11-12 May 2005**

Editors:

Bjørn Skallerud

Helge I. Andersson

ISBN: 978-1-61738-863-7

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2005) by Tapir Academic Press
All rights reserved.

Printed by Curran Associates, Inc. (2010)

For permission requests, please contact Tapir Academic Press
at the address below.

Tapir Academic Press
Nardoveien 12
NO-7005 Trondheim
Norway

Phone: + 47 73 59 32 10
Fax: + 47 73 59 32 04

forlag@tapir.no

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

Table of content, MekIT'05

Davidson L. (invited)	
<i>Hybrid LES-RANS: Inlet boundary conditions.....</i>	7
Felippa CA and Onate E (invited)	
<i>Nodally exact Ritz discretizations of 1D diffusion-absorption and Helmholtz equations by variational FIC and modified equation methods.....</i>	23
Rasmussen J, Damsgaard M, Cristensen ST, and Zee M (invited)	
<i>AnyBody – decoding the human musculoskeletal system by computational mechanics.....</i>	43
<hr/>	
Anvari M, Thaulow C, and Liu J	
<i>Simulation of ductile fracture in round bars using cohesive elements.....</i>	61
Berg E, Skallerud B, Thaulow C, and Holthe K	
<i>Using constraint correction to ductile crack growth in surface cracked shell structures.....</i>	75
Eidsvik KJ	
<i>Parameterizations of oscillatory flows over a rippled bottom.....</i>	87
Gjesdal T, Wasberg CE, and Reif BAP	
<i>Application of a variational multiscale turbulence model in a high order spectral element solver.....</i>	101
Grytten F, Børvik T, Hopperstad OS, and Langseth M	
<i>Numerical simulations of perforation of AA5085-H116 plates.....</i>	117
Hanslien M, Sundnes J, and Lines GT	
<i>Numerical simulations of cardiac arrhythmias and defibrillation.....</i>	135
Heggernes K, Pettersen B, and Kvamsdal T	
<i>Large-eddy simulation of flow around two circular cylinders in a tandem arrangement.....</i>	145
Holmedal LE and Myrhaug D	
<i>Boundary layer flow and net sediment transport beneath asymmetrical waves.....</i>	167
Holstad A, Johansson PS, Andersson HI, and Pettersen B	
<i>Coherent structures in turbulent plane Couette flow.....</i>	183
Jenssen CB, Eikrem TO, and Andersson HI	
<i>A comparison of turbulence models for computing flow and heat transfer downstream of a backward facing step.....</i>	191
Johansson PS and Andersson HI	
<i>On the generation of turbulent inflow data for LES/DNS simulations.....</i>	201

Linge S <i>Biology and modelling of cardiovascular tissue dynamics</i>	211
Mortensen D, Rudshaug M, and Fjær HG <i>Coupled stress, thermal and fluid flow modelling in materials processing</i>	227
Pettersen SH, Skallerud B, and Aamodt A <i>Numerical analysis of femur and hip prosthesis – efficient modelling and comparison with test results</i>	247
Ransau SR, Holdahl R, Kvamsdal T, and Pettersen B <i>A volume preserving method for viscous free surface flows</i>	257
Skeie G and Rusten T <i>Satisfying the Patch test in non-matching finite element analysis</i>	269
Solli LA, Mielnik MM, Karlsen F, Sætran L, and Furuberg L <i>Flow visualization and simulation of discrete liquid droplets moving in micro-channels</i>	281
Staff GA and Mardal KA <i>The accuracy of the velocity approximation with respect to the pressure approximation for incompressible fluid flow</i>	297
Suttmeier FT <i>Efficient numerical methods for variational inequalities</i>	313
Thorvaldsen T, Sundnes J, and Osnes H <i>A mixed formulation for modelling the mechanical behaviour of the heart</i>	327
Undheim O <i>2D simulations of terrain effects on atmospheric flow</i>	343