

CONTENT

<u>Group IA.: Analysis and modeling of interactions of electromagnetic field with matter focused on modern technologies.....</u>	9
T. Mikolanda, M. Košek, A. Richter: 3D magnetic field of permanent magnets, simulation and measurement.....	11
M. Truhlář, A. Richter: The Skin Effect within Three Phase 50 Hz Power Net with High Current Load.....	23
J. Chvojka, D. Lukáš: Electrospun nanoyarns produced using special collectors.....	29
P. Mikeš, D. Lukáš, P. Pokorný: Observation of St. Elmo's fire in laboratory conditions.....	35
M. Košek, J. Primas, M. Malík, A. Richter: Aproximation of strong electric field.....	41
<u>Group IB.: Analysis and modeling of interactions of electromagnetic field with matter focused on medical and industrial application.....</u>	51
P. Togni , J. Vrba , L. Vannucci: Water bolus influence on temperature distribution of applicator for small melanoma tumors.....	53
M. Cífra, J. Pokorný, F. Jelínek and O. Kučera: Vibrations of electrically polar structures in biosystems give rise to electromagnetic Field: theories and experiments.	57
L. Víšek, O. Rychlík: Anatomical Based Biological Models for Microwave Applications.....	67
O. Rychlík, J. Šafařík: Planar applicators for local hyperthermia.....	71
J. Vorlíček, J. Borovka, J. Vrba: Comparison of Microwave Waveguide Applicators for Thermotherapy.....	75
B. Vrbova, J. Vrba: Waveguide-based applicators for local microwave thermotherapy: feasibility study of matrix array treatment.....	81
<u>Group IIA.: Analysis and measurements of fluxional, thermal and other fields describing reactive transport phenomena</u>	87
M. Kotek, V. Kopecký: Application of laser anemometric and vizualization methods on research of weft propulsion.....	89
D. Jašíková, M. Kotek, P. Šidlof, J. Hruza, M. Komárek, V. Kopecký: Nanofilter evaluation using visualization methods.....	97
D. Jašíková, V. Kopecký: A Visualization Technique for Mapping the Velocity of Raising Fibers Production in an Electrostatic Field.....	103
L. Němcová, V. Kopecký, Z. Trávníček: Experimental study of a control synthetic jet using PIV method.....	113
<u>Group IIB.: Computational modelling of fluxional, thermal and other fields describing reactive transport phenomena</u>	119
Š. Klímková, J. Nosek, T. Pluhař, M. Černík: Surface-modified iron nanoparticles for reductive dechlorination of organic contaminants.....	121
J. Kopal: Simulation of geothermal processes.....	123
D. Rosická, J. Šembera: Aggregation model of nanoscale particles including influence of electrostatic forces.....	125
L. Zedek, J. Šembera: The Use of Principal Component Analysis for Reduction of Dimension of Reactive Transport Model.....	135
Hana Baarová, Jan Šembera: Modelling large-scale reactive transport – a case study of Stráž pod Ralskem, Northern Bohemia.....	143

<u>Propositions for Doctoral theses submitted and defended in 2009.....</u>	<u>153</u>
M. Cifra: Study of electromagnetic oscillations of yeast cells in kHz and GHz region.	155
P. Togni: Microwave Applicators for Medical and Biological Purposes.....	165
J. Nosek: Laboratory research and modeling of nanoiron transport properties.....	175
T. Mikolanda: Study of permanent magnets force interaction.....	177
A. Sarkar: Physical Principles of Electrospinning.....	179