Workshop 5 of the ESF Programme REACTOR

Masaryk's House
Prague, September 2-6, 2004

Final Programme

2 Sept, Thursday	**arrival**
15:00 – 19:00	registration
17:45 – 18:45	dinner
19:00 – 21:20	evening session

Session 1 (120 min)

Session leader : P. De Kepper

Welcome

P.G. Sørensen : *Functional dynamics of yeast* (45 min)

M. Hauser *:* *Nonlinear dynamics in biomimetic enzyme model systems* (25 min)

20:15 – 20:30 refreshment break

S. Scott: *Overview of REACTOR Projects from Leeds: process and control* (25 min)

A. Taylor : *Overview of REACTOR Projects from Leeds: waves and patterns* (25 min)

3 Sept, Friday

7:30 – 8:45 breakfast
9:00 – 12:30 morning session

Session 2 (100 min)
Session leader : M. Marek

S. Hardt : *Microreactors – overview of the problems in their modelling* (45 min)
D. Snita, J. Lindner, Z. Slouka, M. Pribyl, M. Marek : *Mathematical modelling of spatially distributed ionic microsystems* (25 min)
J. Lindner, Z.Slouka, D. Snita, M. Marek : *Experimental evidence of concentration fields in the electrolyte diode* (15 min)
M. Davies : *Quantification and control of the hazards associated with transport and bulk storage of fireworks (CHAF) – A Major European Project* (15 min)

10:40 – 11:00 coffee break

Session 3 (75 min)
Session leader : S. Scott

K. Krischer, F.Plenge, H.Varela, Yong-Jun Li : *Pattern formation in electrochemical systems under nonlocal and global coupling* (25 min)
H.H. Rotermund : *Real time imaging and control of pattern formation during catalysis* (25 min)
G. Biosa, M. Masia, N. Marchettini, M. Rustici : *A ternary non-equilibrium phase diagram for a closed unstirred Belousov-Zhabotinskii reaction* (25 min)

12:45 – 13:45 lunch
14:00 – 15:40 afternoon session

Session 4 (100 min)
Session leader : Z. Noszticius

M. Orban, K.Kurin-Csorgei, I.Szalai : *Research work on nonlinear chemistry at Eotvos University in the frame of REACTOR Programme* (25 min)
A. Toth, D.Horvath : *Nonlinear chemical dynamics in Szeged* (25 min)
M. Wittmann : *Latest results of the research group at the Budapest University of Technology and Economics achieved within the Reactor Programme* (25 min)
I. Schreiber: *Overview of REACTOR research projects carried out at Prague Institute of Chemical Technology* (25 min)

15:40 – 16:00 coffee break
16:00 – 22:00 **Poster session**
17:45 – 18:45 dinner

4 Sept, Saturday

7:30 – 8:45 breakfast
9:00 – 12:30 morning session

Session 5 (100 min)
Session leader : S. Hardt

F. Stepanek : *Multiscale modelling* (45 min)
A. De Wit : *Fingering of chemical fronts* (25 min)
P. De Kepper, I. Szalai, P. Cluzeau, J. Boissonade : *Spatial bistability and oscillatory instabilities in the lodate-Sulfite Landolt reaction* (15 min)
G. Salejova, J. Kosek, F. Stepanek : *Foaming of polymers and reconstructed polymeric foams* (15 min)

10:40 – 11:00 coffee break

Session 6 (90 min)
Session leader : M. Orban

Y. Kalishyn, P.E. Strizhak, V.O. Khavrus, M.M. Goncharenko : *Mixed-mode oscillations and chaos in the Belousov-Zhabotinsky reaction catalyzed by ferroin: Experiment and modeling* (25 min)
V. O. Khavrus, P.E. Strizhak, H. Farkas: *Necessary conditions of appearance of mixed-mode regimes in a simple polynomial three-variable model of nonlinear dynamics* (25 min)
O. Rudzick, A.S. Mikhailov : *Twisted spirals and kink traps in forced oscillatory media* (25 min).
S. Mueller, U. Storb, C. Neto, M. Baer : *A tomographic study of filament interaction in chemical scroll waves* (15 min)

12:45 – 13:45 lunch
14:00 – 17:30 afternoon session

Session 7 (95 min)
Session leader : P. Sørensen

L. Olsen, J.C. Brasen, A.Z. Larsen, A.K. Poulsen, T.A. Hansen, M.Ø. Pedersen, M. Ø. Petersen, U. Kummer, H. Petty, A. Kindzelskii : *Metabolic dynamics* (25 min)
M. Pribyl, D. Snita, M. Marek: *Discrete approach to the description of signal transmission in an epithelial tissue* (25 min)
A. K. Poulsen, L.F. Olsen, M.Ø. Pedersen, T. Hansen, J.C. Brasen, A.Z. Larsen : *Optical nano-sensors – get a view inside the living cell* (15 min)
I. Valent, A. Zahradníková, I. Zahradník *: Simulation of Ca/Mg/ATP spatio-temporal dynamics in the cardiac dyade* (15 min)
T. Nakagaki, R. Kobayashi : *Smart behaviors derived from cellular rhythms in true slime mold* (15 min)

15:35 – 16:00 coffee break

4 Sept, Saturday - continued

Session 8 (85 min)

Session leader : I. Schreiber

D. Lebiedz, U. Brandt-Pollmann : *Model based optimal control of spatio-temporal self-organization in chemical and biochemical systems* (25 min)

H. Sevcikova, M. Pornprompanya, S.C. Mueller : *Electric field effects on propagation of pulse waves in pyrogallol-ferroin BZ system* (15 min)

J. Gorecki, J. Gorecka : *On chemical programming* (15 min)

S. De Monte, F. d'Ovidio, H. Chate, E. Mosekilde : *Collective dynamics in populations of globally coupled elements: A top-down view on microscopic variability* (15 min)

M. Masin, I. Vattulainen, T. Ala-Nissila, Z. Chvoj : *Non--equilibrium effects in spreading and diffusion on stepped surfaces* (15 min)

19:00 – 22:00 **Closing Banquet**

5 Sept, Sunday

7:30 – 8:45 breakfast
9:00 – 12:30 morning session

Session 9 (90 min)
Session leader : A. De Wit

D. Salin, M. Leconte : *Autocatalytic front in pulsative flows* (15 min)
R. Satnoianu, D. Gomez, A. Munuzuri : *Experimental stationary flow and diffusion distributed structures (FDS)* (15 min)
T. Travnickova, I. Schreiber, M. Kubicek : *Effects of added convection on fronts and complex spatiotemporal patterns in a cross flow reactor* (15 min)
A. Zadrazil, H. Sevcikova : *Convective instabilites in the presence of an external electric field* (15 min)
A. Zadrazil, I.Z. Kiss, J. D'Hernoncourt, H.Sevcikova, J.H. Merkin, A. De Wit : *The effect of electric fields on the buoyant stability of reaction front* (15 min)
P.L. Simon, J.H. Merkin, A. Volford : *Higher codimensional bifurcations in a biological and combustion model* (15 min)

10:30 – 11:00 coffee break

Session 10 (75 min)
Session leader : S. Müller

F. Gauffre, P. De Kepper, J. Boissonade : *Chemo-mechanical instabilities* (15 min)
D. Strier, P. De Kepper, J. Boissonade *: Turing patterns, spatial bistability and front interactions in the CDI+CDIMA reaction.* (15 min)
J. Vollmer, D. Vollmer, G. K. Auernhammer : *A minimal model for oscillations in phase separation* (15 min)
T. Godula, H. Sevcikova : *The double stimulation in an excitable medium* (15 min).
O. Pesek, L. Schreiberova. I. Schreiber : *Dynamical behavior of pH-oscillator in two mass-coupled CSTRs* (15 min)

12:45 – 13:45 lunch
14:00 – 15:20 afternoon session

Session 11 (80 min)
Session leader : V. Gaspar

A. Feigin : *Probabilistically deterministic models from noisy time series: Modification of Bayesian approach for dynamical system reconstruction* (25 min)
D. Mukhin, A. Feigin, Ya. Molkov, E. Loskutov : *Classification of dynamic system behavior regimes using short noisy time-series* (15 min)
L. Kolar-Anić, V. Vukojević, Ž. Čupić, D. Stanisavljev, N. Pejić, N. Begović, S. Anić : *The Bray-Liebhafsky reaction as the model system for examinations of oscillatory reactions including their applications* (15 min)
L. Sciascia, R. Lombardo, C. Sbriziolo, M. L. Turco Liveri, Z. Noszticzius: *New route to produce smart materials: Emulsion polymerization coupled to Belousov-Zhabotinsky oscillating reaction* (15 min)
Concluding remarks, farewell (Z. Noszticius, S. Scott, M. Marek)

5 Sept, Sunday - continued

15:30 – 17:30	Steering Committee meeting
17:45 – 18:45	dinner for SC members

6 Sept, Monday

7:30 – 8:45	breakfast
9:00 -	**departure**