

**RFBR - DFG - CNRS Trilateral Scientific Seminar**

# **New trends in mechanics of materials**

**Scientific Program of the Seminar**

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26-29 September, 2011

# Scientific Program of the Seminar

Participants registration. 9:00-9:45

Welcome and opening. 9:45-10:00

## Day 1. September 26, 2011

Session 1. 10:00-11:30

1	S. Schmauder. "Recent advances in multiscale materials modeling"
2	V. Eremeyev, M. Grekov, <u>N. Morozov</u> , B. Semenov. "Surface effects and engineering problems of nanotechnology"

Coffee-break. 11:30-12:00

Session 2. 12:00-13:00

1	<u>N. Konchakova</u> , R. Mueller, F.J. Barth. "Simulation and analysis of fracture in lightweight hybrid engineering structures"
2	<u>G. Cailletaud</u> , V. Yastrebov, J. Durant, H. Proudhon. "Rough surface contact analysis by means of FE method"

Lunch. 13:00-14:00

Session 3. 14:00-15:30

1	F. Schmidt, <u>P. Horst</u> . "Fatigue of composite material under biaxial loading: Phenomena"
2	<u>F. Schmidt</u> , P. Horst. "Fatigue of composite material under biaxial loading: Simulation and models"
3	A.A. Movchan. "Shape memory alloys as an object of solids mechanics: experimental data, constitutive equations, statement and solution of boundary problems"

Coffee-break. 15:30-16:00

Session 4. 16:00-17:00

1	A. Pineau. "Ductile to brittle transition in ferritic steels: toughening effect of grain boundaries"
2	<u>R. Müller</u> , C. Kuhn. "On phase field models in brittle fracture"

Daily concluding discussion. 17:00-17:30

## Day 2. September 27, 2011

Session 1. 10:00-11:30

1	<u>R.V. Goldstein</u> , M.N. Perelmuter, N.M. Osipenko, P.S. Shushpannikov. "Mechanics of adhesion fracture"
2	<u>M. Kuna</u> , Th. Linse, M. Abendroth, St. Rasche. "Application of damage models in the ductile, brittle and transition region of steels"

Coffee-break. 11:30-12:00

Session 2. 12:00-13:00

1	A. L. Svistkov. "Continuum-molecular model of oriented polymer regions formation in elastomeric nanocomposite"
2	<u>W. Brocks</u> , I. Scheider. "Use of cohesive elements for the simulation of ductile tearing"

Lunch. 13:00-14:00

Session 3. 14:00-15:30

1	V.P. Matveenkov, <u>O.Yu. Smetannikov</u> , N.A. Trufanov, I.N. Shardakov. "Modeling of thermomechanical behavior of polymers accounting for relaxation and phase transitions"
2	<u>W.H. Müller</u> , M. Sbeiti, M. Schneider-Ramelow, U. Geißler. "Numerical simulation of an ultrasonic wire bonding process within the framework of material forces"
3	<u>K.B. Ustinov</u> , A.V. Chentsov. "Discrete-continual modeling of layered materials"

Coffee-break. 15:30-16:00

Session 4. 16:00-17:00

1	<u>F. Barbe</u> , N. Osipov, G. Cailletaud, C.N. N'Guyen, B. Marini, C. Petry. "From full-field simulations in high-resolution bainite polycrystals to micromechanical local approach of brittle failure"
2	<u>E. Lomakin</u> , Yu. Zezin, T. Beliakova, Y.-R. Jeng. "Study of non-linear viscohyperelastic behavior of filled elastomers"

Daily concluding discussion. 17:00-17:30

### Day 3. September 28, 2011

Session 1. 10:00-11:30

1	<u>G. Cailletaud</u> , T. Herbland, B. Melnikov, S. Quilici. "A strategy for the estimation of the fatigue life of notched components under random multiaxial loadings"
2	S. Lurie. "Use gradient thermoelasticity for modelling of deformation and fracture of thin coverings"

Coffee-break. 11:30-12:00

Session 2. 12:00-13:00

1	T.F. Morgeneyer . "3D investigations of ductile fracture: in-situ synchrotron-radiation computed laminography observation and 3D crack path simulations"
2	E.I. Shifrin. "An approach for solving elastostatic inverse problems"

Lunch. 13:00-14:00

Session 3. 14:00-15:00

1	Ch. Zhang, <u>A. Ekhlakov</u> , O. Khay. "Fracture analysis of functionally graded materials (FGMS) under thermal shock loading "
2	<u>V. Petrova</u> , S. Schmauder. "Modeling of interaction of an interface crack and small cracks in functionally graded/homogeneous bimetals subjected to a heat flux"

Coffee-break. 15:00-15:30

Session 4. 15:30-17:00

1	<u>Ch. Zhang</u> , M. Golub, Y. Wang. "Dynamic behaviour of periodic composites with cracks"
2	A. Pineau. "Scatter and size effects in brittle fracture of macroscopically and microscopically inhomogeneous materials : theory and applications"

Daily concluding discussion. 17:00-17:30

### Day 4. September 29, 2011

Lab tour and presentations. 10:00-11:30

Coffee-break. 11:30-12:00

Lab tour and presentations. 12:00-13:00

Lunch. 13:00-14:00

Closing ceremony 14:00-15:00