

## ICFF VIII Conference Program Outline

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3 January 2008 (GMT +8:00), Hong Kong

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Time	Events	Venue
8:00 – 17:10	On-site Registration	Academic Concourse, HKUST
8:30 – 9:00	Open Ceremony	Chiang Chen Lecture Theatre (LTJ), HKUST
9:00 – 10:00	Single-Session 1	LTJ, HKUST
10:00 – 10:15	Tea Break	Academic Concourse, HKUST
10:15 – 12:15	Single-Session 2	LTJ, HKUST
12:15 – 13:30	Lunch	China Garden Restaurant, HKUST
13:30 – 15:30	Single-Session 3	LTJ, HKUST
15:30 – 15:45	Tea Break	Academic Concourse
15:45 – 17:45	Single-Session 4	LTJ, HKUST
17:45 – 18:45	Buffet Dinner	UC Bistro, HKUST
18:45 – 21:45	Night Sight-seeing Tour	Start: HKUST Terminal: Tsim Sha Tsui (TST)

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4 January 2008 (GMT +8:00), Hong Kong

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Time	Events	Venue
8:00 – 17:10	On-site Registration	Academic Concourse, HKUST
8:30 – 10:00	Single-Session 5	LTJ, HKUST
10:00 – 10:15	Tea Break	Academic Concourse, HKUST
10:15 – 11:45	Single-Session 6	LTJ, HKUST
11:45 – 12:15	Conference Group Photo Taking	Sundial, HKUST
12:15 – 13:30	Lunch	China Garden Restaurant, HKUST
13:30 – 15:30	Single-Session 7	LTJ, HKUST
15:30 – 15:45	Tea Break	Academic Concourse
15:45 – 17:45	Single-Session 8	LTJ, HKUST
17:45 – 21:45	Dinner	Lamma Island

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5 January 2008 (GMT +8:00), Hong Kong – Nansha, Guangzhou, China

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Time	Events	Venue
10:00 – 22:00	Transportation and Social Events	Hong Kong > Shenzhen > Nansha, Guangzhou, China

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6 January 2008 (GMT +8:00), Nansha IT Park, Guangzhou, China

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Time	Events	Venue
8:00 – 17:00	On-site Registration	2/F Concourse, Conference Building (Conf. Build.)
8:30 – 10:10	Oral Session 1A: ✧ Nanoindentation	Room 206, Conf. Build.
	Oral Session 1B: ✧ Interface Fracture ✧ Dynamic Fracture	Room 208, Conf. Build.
10:10 – 10:30	Tea Break	2/F Concourse, Conf. Build.
10:30 – 12:10	Oral Session 2A: Nanomaterials	Room 206, Conf. Build.
	Oral Session 2B: ✧ Environmental Fractures ✧ Fracture Mechanics & Mechanisms	Room 208, Conf. Build.
12:10 – 13:30	Lunch	1/F, Chinese Restaurant, Guest-greeting Building
13:30 – 15:30	Oral Session 3A: ✧ Nanomaterials ✧ Smart Materials	Room 206, Conf. Build.
	Oral Session 3B: ✧ Fracture Mechanics & Mechanisms	Room 208, Conf. Build.
15:30 – 16:00	Tea Break	1/F, Chinese Restaurant, Guest-greeting Building
16:00 – 18:00	Poster Session (with snack and drink)	1/F, Chinese Restaurant, Guest-greeting Building
18:00 – 20:30	Poster Session (Buffet Dinner with Bear & Wine)	1/F, Chinese Restaurant, Guest-greeting Building

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7 January 2008 (GMT +8:00), Nansha IT Park, Guangzhou, China

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Time	Events	Venue
8:00 – 17:00	On-site Registration	2/F Concourse, Conf. Build.
8:30 – 10:10	Oral Session 4A: ✧ Smart Materials ✧ Composites	Room 206, Conf. Build.
	Oral Session 4B: ✧ Fracture Mechanics & Mechanisms ✧ Computational Fracture & Simulation	Room 208, Conf. Build.
10:10 – 10:30	Tea Break	2/F Concourse, Conf. Build.
10:30 – 12:30	Oral Session 5A: ✧ Mechanical behaviors of nanomaterials & nanostructures	Room 206, Conf. Build.
	Oral Session 5B: ✧ Metallic Materials ✧ Polymer	Room 208, Conf. Build.
12:30 – 14:00	Lunch	1/F, Chinese Restaurant, Guest-greeting Building
14:00 – 15:40	Oral Session 6A: ✧ Creep & Fatigue	Room 206, Conf. Build.
	Oral Session 6B: ✧ Computational Fracture & Simulation	Room 208, Conf. Build.
15:40 – 16:00	Tea Break	2/F Concourse, Conf. Build.
16:00 – 17:20	Oral Session 7A: ✧ Reliability & Failure of Engineering Materials and Structures	Room 206, Conf. Build.
	Oral Session 7B: ✧ Miscellaneous	Room 208, Conf. Build.
17:20 – 20:30	Grand Banquet	1/F, Chinese Restaurant, Guest-greeting Building

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## ICFF VIII Conference Program Details

### 3 January 2008 (GMT +8:00), Hong Kong

8:00 – 17:10	On-site Registration, Academic Concourse, HKUST
8:30 – 9:00	Open Ceremony, Chiang Chen Lecture Theatre (LTJ) , HKUST
	Welcome Speech: Prof. Roland Chin
9:00 – 10:00	Single-session 1, LTJ, HKUST
	Session-Chairs: T.Y. Zhang, X.Q. Feng
9:00 – 9:30	Speaker: K.C. Hwang (Tsinghua University, China) IK-01: A Finite-deformation Shell Theory for Carbon Nanotubes Based on the Interatomic Potential
9:30 – 10:00	Speaker: B. Lawn (NIST, USA) IK-02: Fracture of Layer Structures for Dental and Anthropological Applications
10:00 – 10:15	Tea Break, Academic Concourse, HKUST
10:15 – 12:15	Single-session 2, LTJ, HKUST
	Session-Chairs: K.C. Huang; B. Lawn
10:15 – 10:45	Speaker: W. Yang (Zhejiang University, China) IK-03: Crack in Nanocrystalline Metals – Blunting versus Advancement
10:45 – 11:15	Speaker: H. Gao (Brown University, USA) IK-04: Nanomechanics of biological systems – what can we learn from nature about the principles of hierarchical materials?
11:15 – 11:45	Speaker: Y.L. Bai (Chinese Academy of Sciences, China) IK-05: Catastrophic Rupture of Heterogeneous Media -- Its Speciality and Universality
11:45 – 12:15	Speaker: R. M. McMeeking (University of California, USA) IK-06: Fracture Mechanics for Electroactive Materials
12:15 – 13:30	Lunch, G/F, China Garden Restaurant, HKUST
13:30 – 15:30	Single-session 3, LTJ, HKUST
	Session-Chairs: R.M. McMeeking, W. Yang
13:30 – 14:00	Speaker: K. Ravi-Chandar (The Univ. of Texas at Austin, USA) IK-18: Fragmentation in Ductile Solids
14:00 – 14:30	Speaker: K.J. Hsia (Univ. of Illinois at Urbana-Champaign, USA) IK-08: Fracture Resistance of Nanowires: Effects of Surface Stress

14:30 – 15:00	Speaker: R. Müller (TU Darmstadt, Germany) IK-09: Influence of microstructure and defects in ferroelectric materials
15:00 – 15:30	Speaker: S.W. Yu (Tsinghua University, China) IK-10: A constitutive model of ferroelectric ceramics and the effects of fatigue and damage on the hysteresis loops
15:30 – 15:45	Tea Break, Academic Concourse, HKUST
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15:45 – 17:45	Single-session 4, LTJ, HKUST
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	Session-Chairs: H. Gao, S.W. Yu
15:45 – 16:15	Speaker: C. T. Sun (Purdue University, USA) IK-11: Effect of Necking on Fracture Toughness in Polycarbonate
16:15 – 16:45	Speaker: G.L. Chen (Univ. of Sci. and Tech. Beijing, China) IK-12: Composition, Microstructure and Mechanical Properties of Novel TiAl Alloys with Improved High Temperature Capability
16:45 – 17:15	Speaker: Xingyuan (Scott) Mao (University of Pittsburgh, USA) IN-10: Grain boundary mediated plasticity in nanocrystalline material
17:15 – 17:45	Speaker: S.G. Roberts (University Oxford, UK) IK-14: Fracture and the brittle ductile transition in BCC metals: experiments and modelling
17:45 – 18:45	Buffet Dinner, UC Bistro, HKUST
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18:45 – 21:45	Night Sight-seeing Tour (by Bus)
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	Route: UST > Eastern harbour tunnel > Island Eastern corridor > Happy Valley > Peak (take off for 30mins) > Tism Sha Tsui (TST) East

#### **4 January 2008 (GMT +8:00), Hong Kong**

8:00 – 17:10	On-site Registration, Academic Concourse, HKUST
8:30 – 10:00	Single-session 5, LTJ, HKUST
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	Session-Chairs: Y.L. Bai, A.K. Soh
8:30 – 9:00	Speaker: G. Michot (Ecole des Mines de Nancy, France) IK-15: Critical length associated to the brittle to ductile transition
9:00 – 9:30	Speaker: P. Gumbsch (Univ Karlsruhe, Germany) IK-16: An atomistic study of dislocation interaction with a crack tip
9:30 – 10:00	Speaker: J. Lu (Hong Kong Polytechnic University)

IK-17: Study of the fracture mechanisms of nanostructured materials

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10:00 – 10:15     Tea Break, Academic Concourse, HKUST

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10:15 – 11:45     Single-session 6, LTJ, HKUST

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Session-Chairs: Y.W. Mai, Y.W. Chung

10:15 – 10:45     Speaker: C.T. Liu (Oak Ridge National Laboratory, USA)

IK-13: Shear band deformation and fracture of bulk metallic glasses (BMGs)

10:45 – 11:15     Speaker: E.-H. Han (Institute of Metal Research, CAS, China)

IK-19: Influence of Corrosive Environment on Mechanical Properties of Magnesium Alloys

11:15 – 11:45     Speaker: K. Kishimoto (Tokyo Inst. Tech., Japan)

IK-20: Evaluation of the Interfacial Strength by the Indentation Method

11:45 – 12:15     Conference Group Photo Taking, Front Square, HKUST

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12:15 – 13:30     Lunch, G/F, China Garden Restaurant, HKUST

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13:30 – 15:30     Single-session 7 (Combined PG Seminar), LTJ, HKUST

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Session-Chairs: K. Ravi-Chandar, C.T. Liu

13:30 – 14:00     Speaker: Y.W. Mai (University of Sydney, Australia)

IK-21: Depth sensing indentation of linear visco-elastic-plastic solids: a simple method to determine viscoelastic properties

14:00 – 14:30     Speaker: R. O. Ritchie (University of California, Berkeley, USA)

IK-22: How Really Tough is Human Bone?

14:30 – 15:00     Speaker: K. Lu (Shenyang National Lab. for Mater. Sci., China)

IK-23: Effect of nano-scale twins on mechanical properties of copper

15:00 – 15:30     Speaker: Y.W. Chung (Northwestern University, Evanston, USA)

IK-24: The Role of Environment in Affecting Mechanical and Frictional Properties of Materials

15:30 – 15:45     Tea Break, Academic Concourse, HKUST

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15:45 – 17:45     Single-session 8, LTJ, HKUST

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Session-Chairs: K. Lu, C.T. Sun

15:45 – 16:15     Speaker: S.B. Lee (National Tsing Hua University, Taiwan, China)

IN-03: Some Recent Results on Crack Healing

16:15 – 16:45     Speaker: K. Higashida (Kyushu University, Japan)

IN-05: Low-temperature fracture toughness improved by grain-refinement due to severe plastic deformation in low carbon steel

16:45 – 17:15     Speaker: H.O.K. Kirchner (Orsay, France)

IN-01: Thermodynamic driving force and forming and healing of cracks in bone

17:15 – 17:45 Speaker: D.F. Bahr (Washington State University, USA)

O-21: Interfacial Fracture and Failure in Polymer – Metal Systems for Flexible Electronics

17:45 – 21:45 Dinner, Lamma Island

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Route: UST > (by bus) > TST Ferry Terminal > (by ferry) > Lamma Island (get off, dinner) > (by ferry) > TST

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**5 January 2008 (GMT +8:00), Hong Kong – Nansha, Guangzhou, China**

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Time	Events
10:00 – 12:30	Travel to Shenzhen, China (through the Shenzhen Bay port)
12:30 – 14:00	Lunch, Shenzhen, China
14:00 – 15:00	Shenzhen city sight-seeing tour (by bus)
15:00 – 18:15	Shenzhen splendid China folk culture village visit
18:15 – 19:30	Dinner, Shenzhen splendid China folk culture village
19:30 – 20:15	Performance watch (in Shenzhen splendid China folk culture village)
20:15 – 22:00	Travel to hotels in Nansha, Guangzhou

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**6 January 2008 (GMT +8:00), Nansha IT Park, Guangzhou, China**

8:00 – 17:00 On-site Registration, 2/F Concourse, Conference Building

8:30 – 10:10 Parallel Oral Presentations, 2/F, Conference Building

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**Oral Session 1A: Room 206, Conference Building**

Session-Chairs: Y. Y. Earmme, P. Gumbsch

※ Nanoindentation

8:30 – 9:00 Speaker: Yong-Wei Zhang (National University of Singapore)

IN-06: A three-dimensional finite element analysis of interface delamination in a ductile film/hard substrate system induced by wedge indentation

9:00 – 9:20 Speaker: Hidenari Takagi (Nihon University, Fukushima, Japan)

- O-01: Computational Study of Pseudo-Steady Indentation Creep  
 9:20 – 9:40 Speaker: Fuqian Yang (University of Kentucky)  
 O-02: Indentation-Induced Residual Stresses in a 45S5 Bioglass  
 9:40 – 10:00 Speaker: MingHao Zhao (Zhengzhou University, China)  
 O-03: Delaminating Buckling Model Based on Nonlocal Timoshenko  
 Beam Theory for Microwedge Indentation of a film/Substrate System

**Oral Session 1B:** Room 208, Conference Building

Session-Chairs: G. Michot, X.J. Zheng

※ Interface Fracture; Dynamic Fracture

- 8:30 – 8:50 Speaker: Yueguang Wei (Chinese Academy of Sciences, China)  
 O-65: Microscopic Mechanism of Cohesive Zone Model in Interface  
 Fracture Characterizations  
 8:50 – 9:10 Speaker: Y. C. Zhou (Xiangtan University, China)  
 O-22: Interface fracture characteristic and crack propagation  
 investigations of thermal barrier coatings under tensile tests at elevated  
 temperature  
 9:10 – 9:30 Speaker: Kaiyang Zeng (National University of Singapore, Singapore)  
 O-23: Determination of Interface Adhesion of Low-*k* Films on Si  
 Substrate using Wedge Indentation Experiments  
 9:30 – 9:50 Speaker: Vikas Tomar (University of Notre Dame, USA)  
 O-16: Analyses of the Effect of Grain Boundaries in Creep and  
 Dynamic Fracture of Polycrystalline SiC-Si<sub>3</sub>N<sub>4</sub> Nanocomposites  
 9:50 – 10:10 Speaker: Vadim V. Silberschmidt (Loughborough University, UK)  
 O-59: Fracture of Adhesive Joints in Impact Fatigue

10:00<sup>1</sup> – 10:30 Tea Break, 2/F Concourse, Conference Building

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10:30 – 12:10 Parallel Oral Presentations, 2/F, Conference Building

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**Oral Session 2A:** Room 206, Conference Building

Session-Chairs: S.G. Roberts, Horst Vehoff

※ Nanomaterials

- 10:30 – 10:50 Speaker: K. Masuda-Jindo (Tokyo Institute of Technology, Japan)  
 O-04: Study of the Mechanical Fracture and Electronic Properties of  
 Nanoscale Materials  
 10:50 – 11:10 Speaker: Chunsheng Lu (Curtin University of Technology, Australia)  
 O-05: On the Tensile Strength of Carbon Nanotubes  
 11:10 – 11:30 Speaker: M. S. Wu (Nanyang Technological University, Singapore)  
 O-07: Disclinated Cracks in Nanostructures

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<sup>1</sup> The tea break starts from 10:00am because oral session 1A ends at 10:00am.

- 11:30 – 11:50 Speaker: Lin Ye (University of Sydney, NSW 2006, Australia)  
O-08: Fracture of Epoxy Nanocomposites – Roles of Particles
- 11:50 – 12:10 Speaker: Gang-Feng Wang (Xi'an Jiaotong University, Xi'an 710049, China)  
O-09: Several basic problems in solid mechanics with surface effects

**Oral Session 2B:** Room 208, Conference Building

Session-Chairs: Fuqian Yang, Jian Lu

※ Environmental Fracture; Fracture Mechanics & Mechanisms

- 10:30 – 10:50 Speaker: S. Q. Shi (The Hong Kong Polytechnic University, Hong Kong, China)  
O-18: Computer Modeling of Hydrogen Damage in Materials using Phase-Field Method
- 10:50 – 11:10 Speaker: Jian-kang Chen (Ningbo University, China)  
O-20: Equivalent Model of Damage Evolution in Cement Mortar under Sulphate Erosion
- 11:10 – 11:30 Speaker: Masaki Tanaka (Kyushu University, Japan)  
O-64: Crack tip dislocations and their configuration revealed by electron tomography in silicon single crystal
- 11:30 – 11:50 Speaker: Holm Altenbach (Zentrum für Ingenieurwissenschaften, Martin -Luther-Universität Halle-Wittenberg, Germany)  
O-27: Systematization of Combined Yield and Fracture Criteria
- 11:50 – 12:10 Speaker: Francisco G. Emmerich (Universidade Federal do Espírito Santo, Vitoria-ES, Brazil)  
O-28: Atomistic interpretation of the Obreimoff 's experiment

12:10 – 13:30 Lunch, 1/F, Chinese Restaurant, Guest-greeting Building

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13:30 – 15:30 Parallel Oral Presentations, 2/F, Conference Building

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**Oral Session 3A:** Room 206, Conference Building

Session-Chairs: Chunsheng Lu, W. Zhuang

※ Nanomaterials; Smart Materials

- 13:30 – 13:50 Speaker: Hanqing Jiang (Arizona State University, Tempe, AZ 85287)  
O-51: Finite Width Effect of Thin Films Buckling on Compliant Substrate: Impact on Metrology
- 13:50 – 14:10 Speaker: Hyun Hoon Song (Hannam University, Korea)  
O-53: Deformation and structure evolution in reinforced natural rubber with carbon nanotubes and carbon black)
- 14:10 – 14:30 Speaker: Horst Vehoff (Saarland University, Germany)  
IN-07: Plastic deformation and fracture of nanocrystalline and ultra fine grained materials

- 14:30 – 14:50 Speaker: Nimal Rajapakse (The University of British Columbia, Canada)  
O-48: Effect of electric boundary conditions on crack propagation in ferroelectric ceramics
- 14:50 – 15:10 Speaker: W. Q. Chen (Zhejiang University, China)  
O-10: A nonlinear problem of a penny-shaped crack subjected to axisymmetric loading in an infinite transversely isotropic piezoelectric medium
- 15:10 – 15:30 Speaker: F. Fang (Tsinghua University, China)  
O-11: Orientation Dependence of Domain Structure Evolution and Electric Field induced Crack Propagation for  $(\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3)_{0.68}(\text{PbTiO}_3)_{0.32}$  Ferroelectric Single Crystals

**Oral Session 3B:** Room 208, Conference Building

Session-Chairs: Xiaomin Deng, In-Young Yang

※ Fracture Mechanics & Mechanisms

- 13:30 – 13:50 Speaker: Wanlin Guo (Nanjing University of Aeronautics and Astronautics, China)  
O-29: Some essential issues in three-dimensional structural strength and fracture mechanics
- 13:50 – 14:10 Speaker: Huiji Shi (Tsinghua University, China)  
O-31: Updated continuum damage model in DBTT to investigate temperature and constraint effect
- 14:10 – 14:30 Speaker: Hua-Dong Yong (Lanzhou University, Lanzhou, China)  
O-32: The central crack problem for a superconductor by using the Kim model
- 14:30 – 14:50 Speaker: X. B. Zhang (Blaise Pascal University of Clermont II, France)  
O-33: Failure Criterion for Brittle and Quasi-Brittle Materials Under Any Level Of Stress Concentration
- 14:50 – 15:10 Speaker: Z. L. Zhang (Norwegian University of Science and Technology, Norway)  
O-35: Recent Developments in the Study of Crack Tip Constraints
- 15:10 – 15:30 Speaker: Laurent Ponson (California Institute of Technology, USA)  
O-36: How to extend Linear Elastic Fracture Mechanics to inhomogeneous media

15:30 – 16:00 Tea Break, 1/F, Chinese Restaurant, Guest-greeting Building

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16:00 – 18:00 Poster Session, 1/F, Chinese Restaurant, Guest-greeting Building

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Session Chair	Hsia, K.J.		
Poster Competition Committee	Y.Y. Earmme	P. Gumbsch	E.-H. Han
	K. Higashida	J.S. Wu	C.F. Gao

H.O.K Kirchner	S.B. Lee	J. Lu
G. Michot	K. Ravi-Chandar	S.G. Roberts
T.Y. Zhang	Y.W. Zhang	K.J. Hsia
L. Ye	N. Rajapakse	Y.G. Wei
V.V. Silberschmidt	M.H. Zhao	F. Fang
L.J. Qiao	F.G. Emmerich	Y.C. Zhou

※ Biomechanics

Presenter: Sang Woo Kim (Chosun University, Korea)

P-01: Adhesive Strength of Xenogeneic Bone Derived Hydroxyapatite Coatings by Aerosol Deposition Method

Presenter: Young Gook Kim (Chosun University, Korea)

P-02: Fracture toughness of tuna bone derived -hydroxyapatite bioceramics

Presenter: Cheol-Woong Kim (Korea University, South Korea)

P-03: Multi Degree of Freedom SMA Manipulator of Thermoelectric Behavior and Their Application for an Arthroscopy and Surgical Anatomy of the Joint

Presenter: Cheol-Woong Kim (Korea University, South Korea)

P-04: Temperature Change of J-tail SMA Wire using Spinal Surgery According to Voltage/Ampere

Presenter: Jizeng Wang (Brown University, USA)

P-06: Elasticity-Stochastic Description on the Adhesion of Elastic Media via Molecular Bond Clusters

Presenter: Jizeng Wang (Brown University, USA)

P-07: Elasticity-diffusion Modeling on the Adhesion of Elastic Media via Diffusive Molecular Bonds

※ Nanomechanics

Presenter: Kazi Tunvir (Korea Research Institute of Standards and Science, Korea)

P-08: Vacancy Defects Effect on Mechanical Properties of Carbon Nanotubes

Presenter: Joohyuk Park (Sejong University, Korea)

P-09: Fracture Behavior of Functionalized Multi -walled Carbon Nanotubes Reinforced Polyethylene Fibers Composites by Melt Spinning

Presenter: Wang Shibin (Tianjin University)

P-10: Experimental Research on Buckling of Thin Films in Nano-Scale Under Mechanical and Thermal loading

Presenter: Li Linan (Tianjin University)

P-11: Experimental Research on Buckling of Thin Film under Static and Dynamic Loads

Presenter: Y. Wang (City University of Hong Kong, Hong Kong SAR, China)

P-92: Nanoscale Deformation Behavior : An Investigation on the Onset of Plastic Deformation of Nanostructured Solid Solution Ti-Al-N Films

※ Smart Materials

Presenter: Wanlin Guo (Nanjing University of Aeronautics and Astronautics, China)

P-13: Stress concentration at elliptic holes in piezoelectric materials and finite thick plates

Presenter: Jin-xi Liu (Shijiazhuang Railway Institute, China)

P-14: Griffith crack propagating in anisotropic magneto -electro-elastic solids

Presenter: Wei-Yi Wei (Tsinghua University, Beijing, China)

P-16: Propagation of a mode-III interfacial crack between piezoelectric/piezomagnetic bimetals

Presenter: Bo-Jing Zhu (China Agricultural University, P. R. China)

P-17: Hypersingular intergro-differential equations methods for 3D interface crack in anisotropic electro-magneto-elastic composites

Presenter: Ho-Dong Yang (Chosun University, South Korea)

P-18: Analysis on Thermal-Flow Phenomenon of Heat Source inside of Electronic Device by Piezoelectric Bending Actuator

※ Concrete & Soil

Presenter: Jian-kang Chen (Ningbo University, China)

P-19: Evolution of flexural strength of cement mortar attacked by sulphate ions

Presenter: Jian-kang Chen (Ningbo University, China)

P-20: Tensile failure mechanism of cement mortar under uniaxial compressive loading

※ Composite, Polymer & Metallic Materials

Presenter: Amirian A. (University of Tehran, Iran)

P-22: On the KI Measurement for End Points of Thumb-nail cracks in Composite Laminates using Digital Shearography

Presenter: Seung-Chul Lee (Chosun University, Korea)

P-23: A study on the Drilling Characteristics and mechanical properties of CFRP composite

Presenter: Young Tae Cho (Jeonju Univ., Korea)

P-24: FEA of Particle-Reinforced Dental Composite with Interphase Damage

Presenter: In-young Yang (Chosun University, Korea)

P-25 An Experimental Study on CFRP Side Members for Lightweight and Collision Safety

Presenter: Kwang-Hee Im (Woosuk University,, Korea)

P-26: Ultrasonic Influence of Porosity Level on CFRP Composite Laminates Using Rayleigh Probe Waves

Presenter: Bo-Jing Zhu (China Agricultural University, P. R. China)

P-27: Hypersingular integral equation method for 3D crack in electromagnetothermoelastic viscoplastic multiphase composites

Presenter: Sasan Velashjerdi Farahani (Razi Metallurgical Research Center, Iran)

P-28: Evaluation Failure analysis of HP-stainless steel tube

Presenter: You-Tang Li (Lanzhou University of Technology, Lanzhou, China)

P-29: Investigation of Fracture for Medium Carbon Steel under Extra-low Cycle in Axial Loading

Presenter: Ho-Jun Shin (Chosun University, Korea)

P-31: Microstructures and Mechanical Properties of Weld Zone after Laser Welding of Nickel Coated Medium Carbon Steel

Presenter: Andrzej Sluzalec (Technical University of Czestochowa, Poland)

P-33: Identification problems in mechanics of fracture of powder metallurgy materials

Presenter: Ismail Tirtom (Tohoku University, Japan)

P-34: Hierarchical continuum and atomistic investigation of crack tip mechanism in Fe crystal

Presenter: In-young Yang (Chosun University, Korea)

P-35: The Energy Absorption Control Characteristics of Al thin-walled tubes under Impact Load

Presenter: Xian-feng Ma (Tsinghua University, China)

P-36: Effect of Temperature on the Low Cycle Fatigue Properties of a Nickel-Base Single Crystal Superalloy

Presenter: Sunwoong Choi (Hannam University, Korea)

P-97: Effect of Glass Fiber Thermoplastic Composite Tape Reinforcement on Hydrostatic Burst and Stiffness Behavior of Polypropylene Pipes

Presenter: Hyun Hoon Song (Hannam University, Korea)

P-98: Structure-Mechanical Properties Modification of Ultra High Molecular Weight Polyethylene by Electron Beam Irradiation

Presenter: Hyun Hoon Song (Hannam University, Korea)

P-99: Structural evolution of polyethylene under static and dynamic fatigue loadings: In-situ x-ray diffraction study

※ Interface Fracture

Presenter: Do Van Truong (Kyoto University, Japan)

P-38: Application of Damage Mechanics Concept to Crack Initiation from Interface between sub-micron thick films

Presenter: Jihoon Kim (Chosun University, Korea)

P-39: Influence of inter-layer fracture of Al-CFRP hybrid square members changed stacking angle under bending load

※ Creep & Fatigue

Presenter: Seon Jin Kim (Hanyang University, Seoul, Korea)

P-40: Creep behavior of Zr-1.5Nb-0.4Sn-0.1Fe-0.1Cu alloy

Presenter: Jae-Ki Sim (Chosun University Graduate School, South Korea)

P-41: Creep and Tensile Properties during Press Joining Molding of GMT-Sheet

Presenter: Byeong-Soo Lim (Sungkyunkwan University, Suwon, South Korea)

P-42: Local Creep Evaluation of P92 Steel Weldment by Small Punch Creep Test

Presenter: Xin-yan Guo (South China University of Technology, China)

P-43: An Analysis on Bending Stiffness of RC Beams Strengthened with Prestressed CFL under Cyclic Load

Presenter: Cheon-Soo Jang (Hanyang University, Korea)  
P-45: The Probabilistic Evaluation of the Fatigue Life in the Arc Welded Part of Automobile Chassis Component Considering Resonance Effect  
Presenter: Seon Jin Kim (Hanyang University, Korea)  
P-46: The effect of Ti, Al and V addition on thermal fatigue behavior of Fe -15Cr-1.5C steel  
Presenter: Seon Jin Kim (Hanyang University, Seoul, Korea)  
P-47: Thermal fatigue properties of Fe -Cr-Si-C-B alloys  
Presenter: Seon Jin Kim (Hanyang University, Seoul, Korea)  
P-48: Comparison of air blast and ultrasonic shot peening under complex fretting fatigue and fretting wear loading conditions  
Presenter: Amkee Kim (Kongju National University, Korea)  
P-49: Damping in Beam of Closed Cell Al -alloy Foam Beam Damaged by Fatigue  
Presenter: Amkee Kim (Kongju National University, Korea)  
P-50: Scale Effect on Fatigue Behavior of Closed Cell Al -Si-Ca Alloy Foam  
Presenter: D.B. Lee (Sungkyunkwan University, South Korea)  
P-51: Oxidation and Fatigue Crack Growth Rate around Welded Parts of P92 and P122 Alloy  
Presenter: B.S. Lim (Sungkyunkwan University, South Korea)  
P-52: Influence of Oxidation and Frequency on Fatigue Crack Growth Rate of P92 alloy Steel at Elevated Temperatures  
Presenter: R.W. Lin (South China University of Technology, China)  
P-53: Predicted Method of Fatigue Lives of RC Beams Strengthened with CFL under Random Load  
Presenter: Chung-Seog Oh (Kumoh National Institute of Technology, South Korea)  
P-54: Development of a High Cycle Fatigue Testing System and its Application to Thin Al Film  
Presenter: Jun-Hyub Park (TongMyong University, South Korea)  
P-55: Effect of Fabrication on High Cycle Fatigue Properties of Copper Thin Film  
Presenter: Hee-Jin Shim (Hanyang University, Republic of Korea)  
P-56: A Study on the Fatigue Life Prediction of V-Belt Pulley System Considering Reliability Based Design Optimization  
Presenter: A. Varvani-Farahani (Ryerson University, Canada)  
P-58: Thermal Cyclic Stress-Strain Hysteresis Evaluation in SnAgCu (SAC) Solder Joints  
Presenter: Pei-yuan Huang (South China University of Technology, China)  
P-93: Analysis of Interfacial Fatigue Cracks of RC Beams Strengthened With CFL  
Presenter: Woo-Gon Kim (Korea Atomic Energy Research Institute, Korea)  
P-94: Creep Characterization of Ni-based Hastelloy-X Alloy Using Theta Projection Method  
Presenter: Wan-Young Maeng (Korea Atomic Energy Research Institute, Korea)

P-95: Effect of Acetic Acids on Corrosion Fatigue of turbine Steels in High Temperature Water

Presenter: Sunwoong Choi (Hannam University, Korea)

P-96: Utilization of cyclic fatigue for the determination of structural Integrity of Structured-wall polymeric pipes

Presenter: Chul-Su Kim (Korea National Railroad College, Korea)

P-100: Fatigue Crack Growth Behavior of Rail Steel under Mixed Mode Variable Amplitude Loadings

※ Fracture Mechanics & Mechanisms

Presenter: Holm Altenbach(Martin-Luther-Universität Halle-Wittenberg, Germany)

P-60: Equivalent Stress Expressions for Isotropic Yield Behavior

Presenter: Holm Altenbach(Martin-Luther-Universität Halle-Wittenberg, Germany)

P-61: Remarks on Model of Mao-Hong Yu

Presenter: Hui Fan(Nanyang Technological University, Singapore)

P-62: Material Constants for Stress Singularities in Linear Elastic Solids

Presenter: D. M. Kulkarni(Birla Institute of Technology and Science, India)

P-64: Effect of Thickness on Fracture Criterion in General Yielding Fracture Mechanics

Presenter: You Tang Li(Lanzhou University of Technology, China)

P-65: Method to Calculate the Stress Intensity Factor for V-notch of Bi-material

Presenter: Wen Yan Liang(Harbin Engineering University, China)

P-66: The Elastic-viscoplastic Field at the Mixed-mode Crack-Tip under Compression and Shear

Presenter: Jian Lu(The Hong Kong Polytechnic University, Hong Kong, China)

P-67: Study of the interaction of multiple cracks in brittle solids

Presenter: Hua-Dong Yong(Lanzhou University, Lanzhou, China)

P-70: Crack problem for a long rectangular slab of superconductor under an electromagnetic force

Presenter: Hua-Dong Yong(Lanzhou University, Lanzhou, China)

P-71: Analysis of a mode III crack problem in a functionally graded coating–substrate system with finite thickness

Presenter: A.I. Malkin

P-37: Liquid metal embrittlement of superplastic alloys

※ Computational Fracture & Simulation

Presenter: V. M. Nistane (Visvesvaraya National Institute of Technology, India)

P-74: Estimation of J-integral for circumferential crack in piping elbows using Finite Element Analysis

Presenter: Guang Ping Zou (Harbin Engineering University, China)

P-75: A Method of Calculating the KI of Compact Tension Specimen

Presenter: , Xiaomin Deng(University of South Carolina, USA)

P-76: Software development for 3D nonlinear mixed-mode crack growth simulations

Presenter: Frohmut Rösch( Universität Stuttgart, Germany)

P-77: Atomistic dynamics of crack propagation in complex metallic alloys

※ Reliability and Failure of Engineering Materials & Structures

Presenter: CHEN Sunyi (Sinopec Maoming Petrochemical Machine Plant, China)

P-80: Analysis and assessment of the deformations of coke drum

Presenter: Wu-Gui Jiang(Tsinghua University, Nanchang Hangkong University, China)

P-81: Effect of Surface Roughness on Nanoindentation Tests on Thin Films

Presenter: Yool-Kwon Oh(Chosun University, South Korea)

P-82: Prediction on Thermal Stress Distribution in Tread Part of Al-Casting Tire Mold

Presenter: S.G. Roberts(University Oxford, UK)

P-83: Micro-mechanical fracture testing methods

Presenter: Hyeon-kyeong Seo(Chosun University, Korea)

P-84: Energy absorption mechanism of aluminum/CFRP compound tube according to change of stacking condition

Presenter: In-Young Yang (Chosun University, Korea)

P-85: A Study on the Flexural Strengthening Effect of RC Beams with Structural Damages

Presenter: Vadim V. Silberschmidt(Loughborough University, UK)

P-86: Experimental and analytical study of lead -free solder joint reliability in surface mount devices

Presenter: Jihoon Kim (Chosun University, Korea)

P-87: Evaluation on crashworthiness capacity of vehicle side member with various Configurations

Kee Joo Kim(Ssangyong Motor Company, Korea)

P-89: Development of Automotive Rear Sub -frame by Hydro-Forming Process

Hong-Ping Zhao(Tsinghua University, China)

P-90: Mode II Interlaminar Fracture Toughness of Stitched CFRP Composites

Presenter: Biao Wang(Sun Yat-sen University, China)

P-91: Fracture Toughness of Multiferroic Composite Materials under the Mechanical, Electric and Magnetic Loadings

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18:00 – 20:10 Buffet Dinner with Bear & Wine (Continued Poster Session)  
1/F, Chinese Restaurant, Guest-greeting Building

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20:10 – 20:30 Best Poster Awards Result Announcement

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**7 January 2008 (GMT +8:00), Nansha IT Park, Guangzhou, China**

8:00 – 17:00 On-site Registration, 2/F Concourse, Conference Building

**Oral Session 4A:** Room 206, Conference Building

Session-Chairs: E.-H. Han, Z. L. Zhang

※ Smart Materials; Composites

- 8:30 – 8:50 Speaker: Cun-F Gao (Nanjing University of Aeronautics and Astronautics, China)  
O-12: Influence of mechanical stress on partial discharges in cavities in a piezoelectric solid
- 8:50 – 9:10 Speaker: Tong-Yi Zhang (Hong Kong University of Science & Technology, Hong Kong, China)  
IN-04: Polarization-switching-induced toughening of an electrical permeable crack in a ferroelectric material
- 9:10 – 9:30 Speaker: R. R. Bhargava (Indian Institute of Technology Roorkee, India)  
O-55: Strip Saturation Model Solution for a Transversely Cracked Piezoelectric Strip
- 9:30 – 9:50 Speaker: H. S. Park (KAIST, Korea)  
O-54: Effects of Microstructure on Flexural Strength of Biomorphic C/SiC Composites
- 9:50 – 10:10 Speaker: Ki-Weon Kang (Korea Institute of Sport Science, Korea)  
O-14: Effect of Shape Memory Alloy on Impact Damage Behavior and Residual Properties of Glass/Epoxy Laminates under Low Temperature

**Oral Session 4B:** Room 208, Conference Building

Session-Chairs: Wanlin Guo, Kaiyang Zeng

※ Fracture Mechanics & Mechanisms; Computational Fracture & Simulation

- 8:30 – 8:50 Speaker: O. Kolednik (Austrian Academy of Sciences, Leoben, Austria)  
O-50: J-integral and Crack Driving Force in Elastic -Plastic Materials
- 8:50 – 9:10 Speaker: Yong Yang (Harbin Engineering University, Harbin, China)  
O-61: Crack Tip field on Mode I Dynamic Growing Crack in Visco-Elastic Compressible Material
- 9:10 – 9:30 Speaker: Bo Zhou (Harbin Engineering University, P.R. China)  
O-62: Dynamic Solutions for Crack-tip Field of Model II
- 9:30 – 9:50 Speaker: Michael Kaliske (Technische Universität Dresden, 01062 Dresden, Germany)  
O-37: Numerical Determination of Energy Release Rates in Inelastic Materials at Large Strain
- 9:50 – 10:10 Speaker: J. Li (University of Paris XIII, France)

O-38: Numerical analysis of brittle or quasi -brittle materials fracture induced by growth of micro-cracks

10:10 – 10:30 Tea Break, 2/F Concourse, Conference Building

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10:30 – 12:30 Parallel Oral Presentations, 2/F, Conference Building

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**Oral Session 5A:** Room 206, Conference Building

Session-Chairs: Y.W. Zhang, Amkee Kim

※ Mechanical behaviors of nanomaterials & nanostructures (Combined PG Seminar)

10:30 – 10:50 Speaker: J. Xiao (Northwestern University, USA)

PG-01: Molecular Scale Buckling Mechanics in Aligned Single -Wall Carbon Nanotubes on Elastomeric Substrates

10:50 – 11:10 Speaker: N.S. Lu (Harvard University, Cambridge, MA)

PG-02 Highly Stretchable Cu films on Kapton Substrates

11:10 – 11:30 Speaker: W. Shi (Brown University, USA)

PG-03: Effect of Size and Elasticity on Receptor Mediated Endocytosis

11:30 – 11:50 Speaker: M. Luo (HKUST, Hong Kong SAR, China)

PG-04: Surface/Edge-Induced Size-Dependent Properties in Nanowires

11:50 – 12:10 Speaker: S.Q. Huang (Tsinghua University, China)

PG-05: Spinodal Instability and Pattern Formation of Soft Elastic Thin Films

12:10 – 12:30 Speaker: X. Zheng (Sun Yat-sen University, Guangzhou, China)

PG-06: Surface effects in ferroelectric nanowires and nanotubes

**Oral Session 5B:** Room 208, Conference Building

Session-Chairs: Michael Kaliske, Y. C. Zhou

※ Metallic Materials; Polymer

10:30 – 10:50 Speaker: S. G. Roberts (University Oxford, UK)

O-30: Low-temperature fracture mechanisms in a spheroidised reactor pressure vessel steel

10:50 – 11:10 Speaker: Bernd Gludovatz (Austrian Academy of Sciences, Austria)

O-13: Influence of Grain Boundaries on the Fracture Toughness of Tungsten and Tungsten Alloys

11:10 – 11:30 Speaker: G. K. Shek (Kinectrics Inc., Canada)

O-57: The Effect of Load-Reduction or Pre-Stressing on Hydride Crack Initiation from Flaws in Zr-2.5Nb Pressure Tubes

11:30 – 11:50 Speaker: Mehmet Simsir (Cumhuriyet University, Turkey)

O-58: Effect of Heat Treatment on Fracture Behavior of Steel Wire Reinforced Gray Cast Iron

- 11:50 – 12:10 Speaker: Jizeng Wang (Division of Engineering, Brown University, 182 Hope Street, Providence, RI 02912, USA)  
O-15: Mechanics of Strongly Confined Polymers
- 12:10 – 12:30 Speaker: Sunwoong Choi (Department of Polymer Science and Engineering, Hannam University, Daejeon 305-811, Korea)  
O-52: Influence of surface layer characteristics on fracture behavior of polymers

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12:30 – 14:00 Lunch, 1/F, Chinese Restaurant, Guest-greeting Building

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14:00 – 15:40 Parallel Oral Presentations, 2/F, Conference Building

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**Oral Session 6A:** Room 206, Conference Building

Session-Chairs: R. R. Bhargava, O. Kolednik

※ Creep & Fatigue

- 14:00 – 14:20 Speaker: Michael Marx (Saarland University, Germany)  
O-24: Microstructural damage mechanisms from dislocation emission till fatigue crack propagation
- 14:20 – 14:40 Speaker: K. Dang Van (LMS Ecole Polytechnique 91128 Palaiseau Cedex, France)  
O-25: A Unified Model of Fatigue Based on Shakedown
- 14:40 – 15:00 Speaker: Zhengjian Xu (Hong Kong University of Science and Technology, Hong Kong, China)  
O-17: Fracture failure analysis of solder ball joints under high speed shear impact
- 15:00 – 15:20 Speaker: W. Zhuang (Defence Science and Technology Organisation, Australia)  
O-60: Block-by-block Approach for Spectrum Fatigue Crack Growth Prediction
- 15:20 – 15:40 Speaker: A. Varvani-Farahani (Ryerson University, Canada)  
O-63: Thermal Cyclic Stress-Strain Hysteresis Evaluation in SnAgCu (SAC) Solder Joints

**Oral Session 6B:** Room 208, Conference Building

Session-Chairs: G. K. Shek, Sunwoong Choi

※ Computational Fracture & Simulation

- 14:00 – 14:20 Speaker: Xi-Qiao Feng (Tsinghua University, Beijing 100084, China)  
IN-09: Dislocation-Based Finite Element Method for Calculating Stress Intensity Factors of Cracks
- 14:20 – 14:40 Speaker: Biao Wang (Harbin Institute of Technology, Harbin, China)  
IN-08: First-principles study of the effects of alloying elements (Al, Ni, Fe, Co) on the fracture behaviors of Cr<sub>2</sub>Nb
- 14:40 – 15:00 Speaker: Z. Zhuang (Tsinghua University, Beijing, 100084, China)

- O-39: Development of dynamic X-FEM algorithm and application in the fractured shell structures
- 15:00 – 15:20 Speaker: Xiaomin Deng (University of South Carolina, USA)
- O-40: Simulation and prediction of crack growth in ductile thin sheets subjected to combined in-plane and out-of-plane loading
- 15:20 – 15:40 Speaker: Judith Fingerhuth (Helmholtz-Insitut für Strahlen- und Kernphysik, Universität Bonn, Germany)
- O-41: Simulation of the initial stages of fatigue based on cellular automata
- 15:40 – 16:00 Tea Break, 2/F Concourse, Conference Building
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16:00 – 17:20 Parallel Oral Presentations, 2/F, Conference Building

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**Oral Session 7A:** Room 206, Conference Building

Session-Chairs: S. Q. Shi, K. Dang Van

※ Reliability & Failure of Engineering Materials and Structures

- 16:00 – 16:20 Speaker: Francisco G. Emmerich (Universidade Federal do Espirito Santo, Vitoria -ES, Brazil)
- O-44: Magnetic strips to simulate highly layered structured brittle solids in cleavage and fracture experiments
- 16:20 – 16:40 Speaker: Y. G. Shen (City University of Hong Kong, Hong Kong)
- O-45: Buckling, cracking, and spalling in sputter-deposited TiN and Ti-Si-N films
- 16:40 – 17:00 Speaker: K. Yan (The University of Hong Kong, Hong Kong, China)
- O-46: Effects of extrinsic grain boundary defects on Kapitza resistance under laser pulse
- 17:00 – 17:20 Speaker: Chuan-Yu Wu (University of Birmingham, United Kingdom)
- O-47: Fracture of Pharmaceutical Tablets during Manufacturing

**Oral Session 7B:** Room 208, Conference Building

Session-Chair: Z. Zhuang

※ Miscellaneous

- 16:00 – 16:20 Speaker: Jang-Kyo Kim
- O-66: Improved Tensile Strength of Glass Fiber with CNT Nanocomposite Coating
- 16:20 – 16:40 Speaker: Niu Zhirong (Jiaxing University, China)
- O-56: The soils characteristics of the dynamic destruction area subjected to the impact loading
- 16:40 – 17:00 Speaker: A. Malkin
- O-19: Hydrodynamic effects in liquid environment-induced cracking

17:00 – 17:20 Speaker: Matz Haaks (Rheinische Friedrich-Wilhelms-Universität,  
Germany)  
P-44: Prediction of fatigue failure by the local defect density observed  
with positrons

17:20– 20:30 Grand Banquet  
1/F, Chinese Restaurant, Guest-greeting Building

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Banquet chair: B. Wang

17:20 – 17:45 Entering the banquet room

17:45 – 18:15 Speech

18:15 – 19:15 Dinner

19:15 – 20:30 Best Poster Awards Release (Dinner)

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