

**1st International Workshop on Plasticity, Damage and Fracture of
Engineering Materials,
Ankara, August 22-23, 2019**

Thursday August 22nd

08:00 – 09:00 Registration

09:00 – 09:10 Opening

Key Note Lectures (Session I) – Single Session

09:10 – 09:50 *Cem Taşan – Massachusetts Institute of Technology, US*
Damage resistance through double-transformation: Towards new generation TRIP-assisted alloys

09:50 – 10:30 *Laurence Brassart – University of Oxford, UK*
On the effective rheology of random aggregates in diffusional creep and sintering

10:30 – 11:00 *Coffee Break*

Oral Presentations (Session II) – Single Session

11:00 – 11:20 *Johan Hoefnagels – Eindhoven University of Technology, The Netherlands*
Can we use electrons to measure local stresses in polycrystalline materials?

11:20 – 11:40 *Eralp Demir – Sabanci University, Turkey*
Investigation of grain boundary strengthening: Experiments and CPFEM model

11:40 – 12:00 *Umut Salman – CNRS, France*
Non-linear elasticity perspective on crystal plasticity

12:00 – 12:20 *Sezer Özerinç – Middle East Technical University, Turkey*
Understanding Plasticity of Nanostructured Materials through Advanced Micromechanical Testing

12:20 – 13:30 *Lunch*

13:30 – 15:00 **Poster Session I (with coffee and cookies)**

Key Note Lectures (Session III) – Single Session

15:00 – 15:40 *Hüsnü Dal – Middle East Technical University, Turkey*
A Multiscale Approach for Cavity Initiation and Growth in Rubberlike Materials

Oral Presentations (Session IV) – Single Session

15:40 – 16:00 *Ali Javili – Bilkent University, Turkey*
Continuum-kinematics inspired peridynamics

16:00 – 16:20 *Mehmet Dorduncu – Erciyes University, Turkey*
A State-Based Peridynamic Truss Element for Progressive Failure Analysis of Composites

16:20 – 16:40 *Cemal Basaran – The State University of New York at Buffalo, US*
Unified Mechanics Theory

Social Activities

16:50 *Departure from TOBB University to METU with coaches*

17:10 – 19:00 *METU tour and reception (with drinks and snacks)*

19:20 *Arrival at Armada shopping mall for dinner*

19:30 – 22:30 *Workshop dinner at a Turkish Meyhane (please register at welcome desk)*

Friday August 23rd

08:00 – 09:00 Registration

Key Note Lectures (Session V) – Single Session

09:00 – 09:40 *Johan Hoefnagels – Eindhoven University of Technology, The Netherlands*
Unraveling micro-plasticity and boundary mechanisms in martensite and dual-phase steel

09:40 – 10:20 *David Morin – Norwegian University of Science and Technology, Norway*
Towards a virtual laboratory for the design of aluminium structures: automotive applications

10:20 – 10:40 Coffee Break

Oral Presentations (Session VIA) – Parallel Session

Room1

10:40 – 11:00 *Abolfazl Zahedi – De Montfort University, UK*

Fracture predictions of U-notched samples: A discrete energy approach

11:00 – 11:20 *Myroslava Hredil – Karpenko Physico-Mechanical Institute, Ukraine*

Fractographic Features of Long Term Operated Gas Pipeline Steels Fracture under Impact Loading

11:20 – 11:40 *Taiko Aikawa – The University of Tokyo, Japan*

Microstructural factor for the difference of brittle crack propagation resistance by the direction in thick steel plate with texture

11:40 – 12:00 *Emine Fulya Akbulut Irmak – University of Paderborn, Germany*

Fracture Prediction of Additively Manufactured ALSi10Mg Materials

Oral Presentations (Session VIB) – Parallel Session

Room2

10:40 – 11:00 *Abdoulhdi A. Borhana – Universiti Tenaga Nasional, Malaysia*

Variation of Stress Triaxiality Sheet Metal Shear Compression (SMSC) Specimen

11:00 – 11:20 *Yoon-Suk Chang – Kyung Hee University, South Korea*

Application of XFEM with Degraded Properties for Fracture Evaluation

11:20 – 11:40 *Kadir Bilisik – Erciyes University, Turkey*

Fracture toughness (Mode-II) of Nanostitched Composites

11:40 – 12:00 *Osman Gültekin – Middle East Technical University, Turkey*

Phase-field approach to model fracture in human aorta

12:00 – 13:30 Lunch

Key Note Lectures (Session VIIA) – Single Session

Room1

13:30 – 14:10 *Majid R. Ayatollahi – Iran University of Science and Technology, Iran*

Mixed mode fracture in brittle polymers

Oral Presentations (Session VIIB) – Single Session

Room1

14:10 – 14:30 *Cihan Tekoğlu – TOBB University of Economics and Technology, Turkey*

Experimental Investigation of Crack Propagation Mechanisms in Commercially Pure Aluminum Plates

14:30 – 14:50 *Sakdirat Kaewunruen – University of Birmingham, UK*
The importance of ‘Dynamics’ in the design and performance testing criteria for railway track components

14:50 – 16:20 **Poster Session II (with coffee and cookies)**

Oral Presentations (Session VIIIA) – Parallel Session

Room1

16:20 – 16:40 *Gabriella Bolzon – Politecnico di Milano, Italy*
Mechanical characterization of metals by small sampling size

16:40 – 17:00 *Nathaniel Mupe – Doshisha University, Japan*
Improvement of the Mechanical Properties of Magnesium Alloy AZ31 Using Non-linear Twist Extrusion (NTE)

17:00 – 17:20 *Mayank Chouksey – Indian Institute of Technology Kanpur, Kanpur, India*
Computational generation of subsequent yield surfaces in porous, ductile solids

17:20 – 17:40 *Ahad Janahmadov – National Aviation Academy, Azerbaijan*
Physical Mesomechanics and Spectrum of Materials Surface Layer at Friction Process

Oral Presentations (Session VIIIB) – Parallel Session

Room2

16:20 – 16:40 *M. Burak Toparli – NORM R&D Center, Turkey*
Role of residual stresses to crack initiation and propagation under impact loading

16:40 – 17:00 *Ali Ayhan – Sakarya University, Turkey*
Applications on Three-Dimensional Fatigue Crack Propagation Using Fracture and Crack Propagation Analysis System (FCPAS)

17:00 – 17:20 *Burak Ogun Yavuz – Middle East Technical University, Turkey*
Interlaminar tensile strength of different angle-ply CFRP and GFRP composites

17:20 – 17:40 *Emine Burcin Ozen – Middle East Technical University, Turkey*
Investigation of Fretting Fatigue Failure Mechanism of Lug-Bush Connection Members

Closing Remarks

17:40 – 18:00 **Closing Remarks**