



19TH INTERNATIONAL CONFERENCE ON DEFORMATION, YIELD AND FRACTURE OF POLYMERS

MARCH 24-28, 2024 ROLDUC ABBEY, KERKRADE, THE NETHERLANDS

Sunday March 24, 2024

16.00 Registration open

18.00 Welcome reception & buffet / kindly sponsored by 

Monday March 25, 2024

08.30 Registration open

09.50 Welcome

Session 1: *Molecular Modeling*
Chair: Markus Hütter (NL)

10.00 *Multiscale modelling of flow-induced crystallization in polymers*
Marat Andreev (Invited, US)

10.25 *Multiscale modelling of crazing in glassy polymers under cyclic loading: molecular dynamics and continuum micromechanics*
Tobias Laschütza (DE)

10.50 *What can MD simulations tell us about the micromechanics of deformation of glassy amorphous polymers?*
Pramod Kumar Patel (IN)

11.15 *Determining the intrinsic fracture energy of a gel by numerical simulation*
Antoine Sanner (CH)

11.40 *Bridging the timescale gap in polymer mechanics through non-affine deformation theory*
Vinay Vaibhav (IT)


12.05 *Molecular dynamics simulations of semi-crystalline polymers with oriented large lamellar crystals: effect of chain length on isothermal crystallization and tensile deformation*
Olivier Lame (FR)

12.30 Lunch.

Session 2: *Surfaces, Contact & Adhesion*
Chair: Marina Pecora (FR)

14.00 *Contact Mechanics of Hydrogels*
Yuhang Hu (Invited, US)

14.25 *Strain recovery and cohesive lock-in of nanosheet network thin films under high strain compression*
Aaron Sinnott (Invited, IE)

- 14.50 *Crack front destabilization in polyvinylbutyral/glass interfaces results from viscoplasticity*
Etienne Barthel (FR)
- 15.15 *Unveiling mechanical heterogeneities inside spherulitic microstructure with nanoindentation and atomic force microscopy*
Olga Smerdova (FR)
- 15.40 Tea
- Session 3: *Fracture & Toughness I***
Chair: Loic Vanel (FR)
- 16.10 *Elastomer fracture and strain field analysis*
Kenji Urayama (Invited, JP)
- 16.35 *Interfacial reinforcement of a 3D-printable double network granular hydrogel*
Tianyu Yuan (CH)
- 17.00 *Deformation and fracture of lithomers - a novel class of polymeric multilayer composite materials*
Christoph Waly (AT)
- 17.25 *Morphogenesis in the cutting of soft polymers*
Matteo Ciccotti (Invited, FR)
- 17.50 End of oral session
- 18.00 Happy hour
- 19.15 Dinner
- 21.00 Poster session I / kindly sponsored by 

Tuesday March 26, 2024

- Session 4: *Physics of Glasses***
Chair: Didier Long (FR)
- 09.00 *Strain hardening of glassy polymers : insights from dielectric measurements*
Jerome Hem (Invited, LU)
- 09.25 *Combined modeling of the volume, dielectric, and stress relaxation and fatigue behavior in glassy polymers*
Valeriy Ginzburg (US)
- 09.50 *Mechanics of solid polymers: Understanding and modelling the creep response*
Martin Roman-Faure (FR)
- 10.15 *Cool research: tough epoxy resin systems for cryogenic applications*
Theo Tervoort (CH)
- 10.40 Coffee
Chair: Lambert van Breemen (NL)

- 11.10 *Dynamics and mechanics of a highly crosslinked covalent adaptable network (CAN) model system*
Broderick Lewis (US)
- 11.35 *Accurate measurements and predictions of temperature rise during high strain rate deformation of polycarbonate*
Grace Owen (UK)
- 12.00 *Modifying deformation micro-mechanisms in an epoxy network by introducing ionic liquid based nano-heterogeneities*
Xavier Morelle (FR)

12.25 Lunch

Session 5: *Fracture & Toughness II*
Chair: Costantino Creton (FR)

- 14.00 *Experimental fracture mechanics of high-performance polymer films using DIC and full-field constitutive post-processing*
Jevan Furmanski (Invited, US)
- 14.25 *Effects of long-term lubricant exposure on mechanical impact properties of polycarbonate safety glazing*
Magdalena Goslinska (DE)
- 14.50 *Theory of brittle-to-ductile transition in polymer materials*
Claudio Fusco (FR)
- 15.15 *Polymer composites reinforced by continuous irregular networks: from reinforcing architecture design to fracture*
Tommaso Magrini (NL)
- 15.40 Tea
- Chair: André Studart (CH)
- 16.10 *Fracture of double networks: insights from coarse-grained simulations*
Jasper van der Gucht (NL)

Session 6: *Biological & Bioinspired*

- 16.35 *How freezing breaks soft materials*
Robert Style (Invited, CH)
- 17.00 *Active and passive deformation of plant structures: Reliable functioning despite large damage*
Thomas Speck (Invited, DE)
- 17:25 *3D-Printing Liquid Crystal Polymers to replicate the Anisotropic Complexity of Wood*
Kunal Masania (NL)
- 17.50 End of oral session
- 18.00 Happy hour
- 19.15 Dinner
- 21.00 Poster session II / kindly sponsored by **KINGFA**

Wednesday March 27, 2024

Session 7: *Soft Matter & Rubbers*

Chair: Alfred Crosby (US)

- 09.00 *Deformation of a polymer network to its structural limit*
Tasuku Nakajima (Invited, JP)
- 09.25 *Expanding the TUFF method: Stretching Ultrathin Freestanding Soft Polymers Films*
R. Konane Bay (Invited, US)
- 09.50 *Data-driven approach unravelling multiaxial behaviour of elastomers during ageing*
Hugo Madeira (FR)
- 10.15 *Data-driven statistical learning of finite strain inelasticity in elastomers*
Vu Ngoc Khiem (DE)
- 10.40 Coffee
- Chair: Claudia Marano (IT)
- 11.10 *Viscoelastic Behavior of Liquid Crystal Elastomers*
Vicky Nguyen (Invited, US)
- 11.35 *Repeatable power amplified actuation of confined polymer gels*
Nolan Miller (US)
- 12.00 *Stress-softening effects in filler-reinforced elastomers under biaxial extension and crack propagation*
Thanh-Tam Mai (JP)
- 12.25 Lunch

Session 8: *Fatigue & Durability*

Chair: Matthias De Monte (DE)

- 14.00 *Impact of aging on polymer fracture*
Pierre-Yves Le Gac (Invited, FR)
- 14.25 *Capturing fatigue crack propagation of isotactic polypropylene: effects of temperature and molecular weight*
Sten van den Broek (NL)
- 14.50 *Two examples of thermomechanical analysis of fatigue mechanisms in polymers and composites: experiments and models*
Yann Marco (FR)
- 15.15 *Characterisation, forecast and improvement of high-density polyethylene recyclates environmental stress-cracking behaviour*
Britta Gerets (DE)
- 15.40 Tea

Chair: Renaud Rinaldi (FR)

16.10 *Influence of water uptake on long-term performance of PPSU*
Leon Govaert (NL)

Session 9: *In-Situ Observations*

16.35 *Mechanisms of deformation at the scale of spherulite by combining ex-situ and in-situ tensile tests using micro and nano-tomography*
Lucien Laiarinandrasana (Invited, FR)

17.00 *Raman spectroscopy applied to study in situ polymers microstructures and micromechanisms of deformation*
Marc Poncot (Invited, FR)

17:25 *Deformation kinetics of single-fiber polypropylene composites: adhesion improvement at the expense of toughness*
Stan Looijmans (NL)

17.50 End of oral session

19.30 Conference dinner / kindly sponsored by



Thursday March 28, 2024

Session 10: *Semi-Crystalline Polymers*

Chair: Thomas Thurn-Albrecht (DE)

09.00 *Role of amorphous phase in tensile deformation of semi-crystalline polymers*
Yongfeng Men (Invited, CN)

09.25 *Embrittlement of polyamide 6,6 due to de-icing salts*
Edwige Lay (FR)

09.50 *Abnormal strain rate dependence of amorphous phase instability in semicrystalline polymers: insight from lamellar stack scale*
Hang Guo (CN)

10.15 Coffee

Chair: Tom Engels (NL)

10.45 *Tree-like void-groups formed in quenched syndiotactic polypropylene during tensile deformation*
Ying Lu (CN)

11.10 *Accurate modelling of the viscoelastic-viscoplastic material behaviour of UHMWPE fibres to model the deformation behaviour for mooring applications*
Marc Kanters (NL)

Snow Talk

11.35 *Darwin, cellulose and bugs*
André Studart (Invited, CH)

12.15 Closing remarks

12.20 Lunch