



**18<sup>th</sup> International Conference on Deformation, Yield and Fracture of Polymers**  
April 10-14, 2022 Rolduc Abbey, Kerkrade, NL

**Sunday April 10, 2022**

- 16.00 Registration open  
18.00 Welcome reception & buffet

**Monday April 11, 2022**

- 08.30 Registration open  
10.00 Welcome by André Studart and Leon Govaert

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

- 10.10 *Legacy of Mark Robbins*  
Joerg Rottler
- 10.25 *Nonlinear mechanics of physically crosslinked polymer elastomers and glasses*  
Joerg Rottler (Invited, CA)
- 10.50 *A Molecular Model for Creep in Oriented Polyethylene Fibers*  
Thomas O'Connor (Invited, USA)
- 11.15 *Bond Orientation-Assisted Retractive Stress in Polymer glasses*  
Tingyu Xu (CN) (hybrid)
- 11.40 *Molecular modelling of flow-induced crystallization of polypropylene*  
Alexey Lyulin (NL)
- 12.05 *Crazing reveals an entanglement network in glassy ring polymers*  
Ting Ge (USA) (hybrid)
- 12.30 Lunch.

**Session 2: *Soft Matter & Rubbers***  
Chair: Michelle Seitz (USA)

- 14.00 *Mapping and quantifying covalent bond scission during fracture of elastomers with mechanosensitive molecules*  
Costantino Creton (Invited, FR)
- 14.25 *Macroscale Double Networks: From the Molecular- to Macro-scale*  
Daniel King (JP) (hybrid)
- 14.50 *Cavitation Mechanisms in Elastomers Exposed to Hydrogen: New insights brought by in-situ tomography and mechanochemistry*  
Xavier Morelle (FR)

15.15 *Mapping deformation and dissipation during fracture of soft viscoelastic hydrogel*  
Rong Long (Invited, USA) (hybrid)

15.40 Tea

**Session 3: *Additive Manufacturing***  
Chair: Lambert van Breemen (NL)

16.10 *Epoxy-based core-shell hybrid materials and low-density foams via material extrusion additive manufacturing*  
Brett Compton (Invited, USA)

16.35 *Advances in light-assisted volumetric additive manufacturing*  
Antoine Boniface (Invited, CH)

17.00 *Aligning molecular and structural dynamics in additive manufacturing by molecular engineering; towards enhanced thermoplastic weld mechanics and geometrical stability*  
Jules Harings (NL)

17.25 *Experimental investigation and material modelling of the photopolymers for DLP additive manufacturing process*  
Kubra Sekmen (FR)

17.50 End of oral session

18.00 Happy hour

19.15 Dinner

21.00 Poster session I

## **Tuesday April 12, 2022**

**Session 4: *Physics of Polymer Glasses***  
Chair: Clive Siviour (UK)

09.00 *Non-linear Viscoelastic Response of Polymer Glasses: From Holeburning to LAOS*  
Greg McKenna (Invited, USA)

09.25 *The Toughness of a Single Weld Formed by Fused Filament Fabrication*  
Vicky Nguyen (Invited, USA)

09.50 *Evidence of large densification of polymer glass under combined high pressure and shear flow*  
Graham Cross (IE)

10.15 *Plasticity of glassy polymers at the mesoscale: implementation of a finite element model based on shear transformation zone dynamics*  
Frederik Van Loock (NL)

10.40 Coffee

11.10 *Modelling the tensile deformation and yielding of amorphous glassy polymers using "TS2-SL" theory*  
Valeriy Ginzburg (USA)

- 11.35 *Elasticity, plasticity and fracture toughness at ambient and cryogenic temperatures of epoxy systems used for the impregnation of high-field superconducting magnets*  
Andre Brem (CH)
- 12.00 *Entanglements and mobility in ultrathin polymer film mechanics*  
Cynthia Bukowski (USA) (hybrid)
- 12.25 Lunch
- Session 5: *Fracture & Toughness***  
Chair: Claudia Marano (IT)
- 14.00 *How moving cracks in brittle solids choose their path ...*  
Jay Fineberg (Invited, IL)
- 14.25 *Nonlinear elastic effect on interacting crack paths in PDMS films*  
Loic Vanel (FR)
- 14.50 *Embrittlement of Short Fiber Reinforced Thermoplastic Systems Under Multiaxial Loading Conditions*  
Martijn Wismans (NL)
- 15.15 *Revisiting the fracture-mechanical behaviour of unfilled and filler reinforced elastomers by advanced experimental techniques*  
Eric Euchler (DE)
- 15.40 Tea
- 16.10 *Effect of temperature, time and molecular weight on the fracture behavior of soft thermoplastic elastomers*  
Simone Sbrescia (BE)
- 16.35 *Microrheometric study of damage and rupture of capsules in simple shear flow*  
Chaymea El Mertahi (FR)
- Session 6: *Biological & Bioinspired***  
Chair: André Studart (CH)
- 17.00 *Composites for sustainable development based on wood, wood fibers or nanocellulose fibrils – strain field data and mechanical properties*  
Lars Berglund (Invited, SE)
- 17.25 *Embracing Complexity for Enduring and Adaptive, Organic Robots via Autonomous Materials*  
Robert Shepherd (Invited, USA) (hybrid)
- 17.50 End of oral session
- 18.00 Happy hour
- 19.15 Dinner
- 21.00 Poster session II

**Wednesday April 13, 2022**

**Session 6: *Biological & Bioinspired cont'd***

Chair: Lars Berglund (SE)

- 09.00 *Molecular stress and strain sensors for polymers*  
Christoph Weder (Invited, CH)
- 09.25 *Modulation of supramolecular interactions in biomimetic collagen gels for advanced mechanical response*  
Julie Brun (FR)
- 09.50 *Deformation and Fracture of Soft Collagenous Tissues*  
Edoardo Mazza (CH)
- 10.15 *Three-dimensional printing of biologically inspired composites from liquid crystal polymers*  
Kunal Masania (NL)
- 10.40 Coffee

**Session 7: *Fatigue & Durability***

Chair: Matthias De Monte (DE)

- 11.10 *Molecular Weight Dependence of Crack Growth in Polyethylenes, "Slip Slidin' Away"*  
Theo Tervoort (Invited, CH)
- 11.35 *Fatigue behaviour of thermoplastic bulk materials under mixed mode loading conditions*  
Florian Arbeiter (Invited, AT)
- 12.00 *The mechanism behind the impressive fatigue threshold of soft thermoplastic elastomer*  
Giorgia Scetta (FR)
- 12.25 Lunch
- 14.00 *Accurate fatigue life prediction of injection molded short glass fiber reinforced plastics parts*  
Marc Kanters (NL)
- 14.25 *Combined effect of environment and mechanical loadings on the damage behaviour of reinforced PA 66*  
Simon Lottier (FR)

**Session 8: *Surface, Contact & Adhesion***

Chair: Chelsea Davis (USA)

- 14.50 *Tough gels with weak bonds*  
Alba Marcellan (Invited, FR) (hybrid)
- 15.15 *Wet Adhesion and Bioadhesive Technology*  
Xuanhe Zhao (Invited, USA) (hybrid)
- 15.40 Tea
- 16.10 *Controlling and studying touch perception through adhesion, friction, and soft matter phenomena*  
Charles Dhong (USA)

16.35 *Pressure Tunable Adhesion of a Rough Elastomer*  
Naomi Deneke (USA)

17.00 *Switchable adhesives for multifunctional interfaces*  
Michael Bartlett (USA) (hybrid)

### **Snow Talk**

17:25 *Soft Electronics for Digitizing Human Body and Human-centered Robotics*  
Nanshu Lu (Invited, USA) (hybrid)

18.10 End of oral session

19.30 Conference dinner

### **Thursday April 14, 2022**

#### **Session 9: Structure Development & Related Properties**

Chair: Lucien Laiarinandrasana (FR)

09.00 *On strain hardening in strain induced crystallization in NR*  
Laurent Chazeau (Invited, FR)

09.25 *Multiscale characterization of deformation mechanisms of semi-crystalline PolyEtherEtherKetone (PEEK) under tensile loading*  
Heloise Willeman (FR)

09.50 *Micromechanical modelling of the stress-strain behaviour of isotropic alpha-iPP*  
Hernan Chavez Thielemann (NL)

10.15 Coffee

10.45 *Mechanisms fo strain hardening in polymers; from local conformation to crystalline organisation in PET and PEF*  
Noelle Billon (FR)

11.10 "Tying the knot", ultra-fast entangling across ultra-high molecular weight polyethylene interfaces  
Fotis Christakopoulos (CH)

### **Covid talk**

11.35 *Dynamic fracture through heterogeneous brittle material*  
David Kammer (Invited, CH)

12.15 Closing remarks

12.30 Lunch