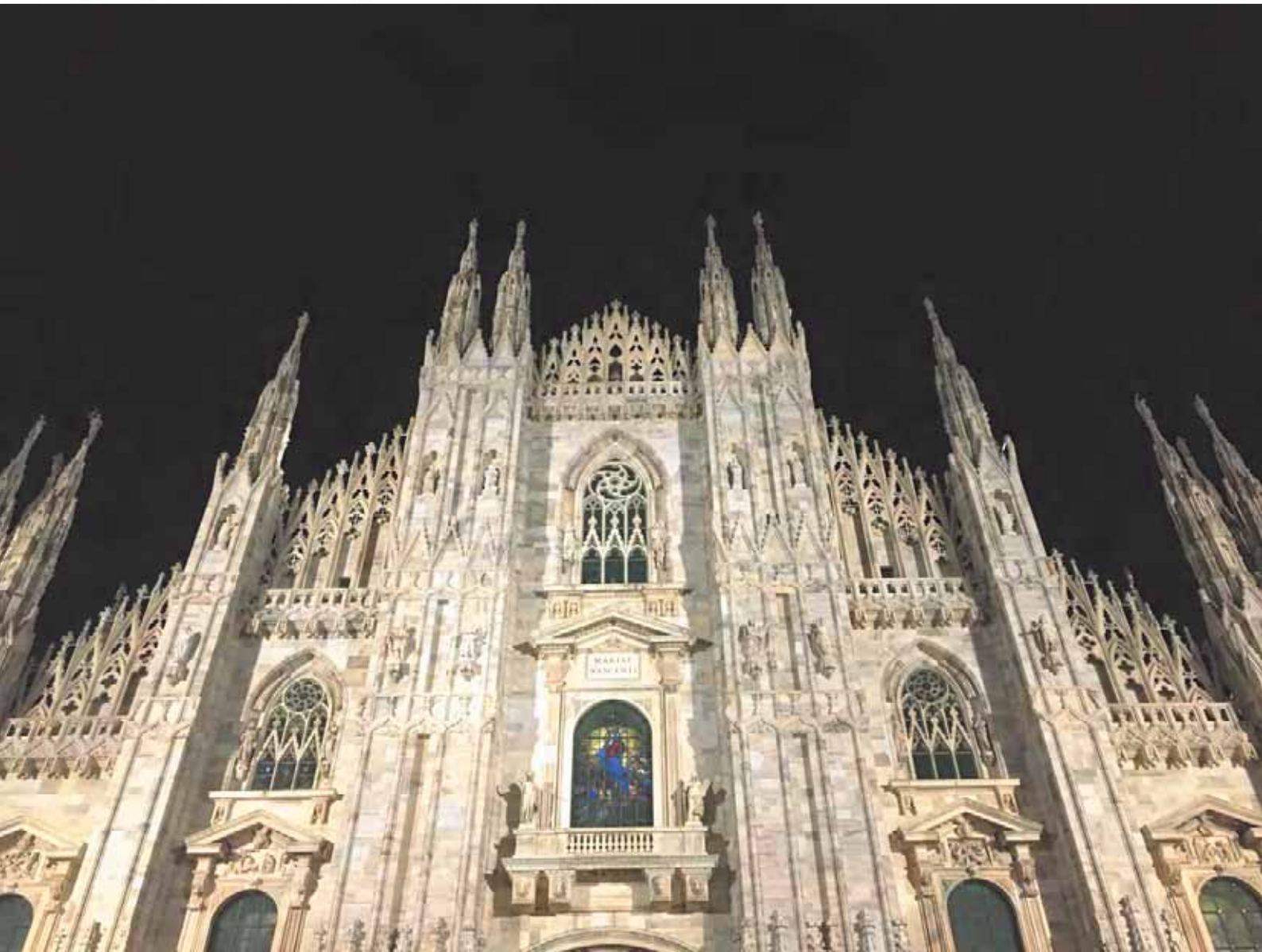




**POLITECNICO**  
MILANO 1863



## ***XII European Conference on Constitutive Models for Rubbers***



*September 7<sup>th</sup> - 9<sup>th</sup> 2022*  
*Trifoglio Building, Politecnico di Milano*

*Sponsored by*







## PoliMi\_Map

### Addresses:

- **Welcome party**

*Piazza Leonardo da Vinci 32*

*Building 1*

- **Conference**

*from Via Ampère 2*

*from Via Bonardi 9*

*Trifoglio Building 13*

### Rooms:

T.2.1

T.2.2





## ***SESSIONS***

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*Constitutive models*

*Experimental methods and characterization*

*Micro-structural investigations*

*Numerical methods*

*Fatigue and fracture*

*Aging*

*Industrial applications*

*Smart elastomer materials*

*Keynote*



6 September		
FROM	TO	
18:30	20:00	WELCOME PARTY_BUILDING 1
7 September		
FROM	TO	
08:30	09:30	REGISTRATION
09:30	09:50	PRESENTATION
09:50	10:30	Room T.2.1 <b>HANEL Thomas</b> <i>How innovations on sustainable materials and the virtualization are game changers for the tyre of the future?</i>
10:30	11:00	COFFEE BREAK
		<b>Room T.2.1</b> <b>Session 1 - Constitutive models</b> <b>Chair: BUSFIELD James</b>
		<b>Room T.2.2</b> <b>Session 2 - Fatigue and fracture</b> <b>Chair: KLÜPPEL Manfred</b>
11:00	11:20	<b>SIEBERT Sebastian</b> <i>Modelling and experimental characterisation of cellular rubber considering inelastic effects and the microstructure's influence on the macroscopic mechanical behaviour</i>
		<b>WARNEBOLDT Iona</b> <i>Multiaxial crack propagation tests on NR Pure Shear samples to study crack features from relaxing and non-relaxing loads</i>
11:20	11:40	<b>BECKER Justin</b> <i>Modelling of the compressible hyperelastic behavior of polyurethane foams: analysis of some models and of the influence of the identification strategy</i>
		<b>TAISNE Ombeline</b> <i>Using mechanophores to characterize sub-surface damage during wear of elastomers</i>
11:40	12:00	<b>BOUR Manon</b> <i>Dissipative hyper-elastic model for highly compressible elastomeric seals</i>
		<b>MORELLE Xavier</b> <i>Intrinsic differences between fatigue and toughness mechanisms in multiple network elastomers: the duality of damage by sacrificial bonds</i>
12:00	12:20	<b>EGELKAMP Christian</b> <i>Model sensitivity study for service lifetime prediction of elastomer compounds from computed tomography dispersion analysis</i>
		<b>POPOVYCH Oleksiy</b> <i>Fracture toughness of rubber in quasi-static conditions: how to experimentally obtain results intrinsic to the material?</i>
12:20	12:40	<b>DAMIL Nouredine</b> <i>Towards a macro-chain polymer model using a micromechanical approach</i>
		<b>SELLES Nathan</b> <i>Fatigue crack growth behaviour of filled rubber compounds: influence of viscoelasticity through frequency and temperature dependencies.</i>
12:40	14:30	LUNCH
		<b>Room T.2.1</b> <b>Session 3 - Constitutive models</b> <b>Chair: KALISKE Michael</b>
		<b>Room T.2.2</b> <b>Session 4 - Experimental methods and characterization</b> <b>Chair: MARCO Yann</b>
14:30	14:50	<b>IHLEMANN Jörn</b> <i>Using submodeling to analyze elastomer components reinforced with textile cords</i>
		<b>NAM Tran Huu</b> <i>Experimental and numerical investigation of compression stress relaxation of isotropic magneto-sensitive elastomeric composite</i>
14:50	15:10	<b>OVALLE Cristian</b> <i>Laminated rubber bearings subjected to combined shear and compressive loading: Heterogeneous ageing and crack growth in mode II</i>
		<b>MEIER Jens</b> <i>Extended dynamic mechanical characterization of elastomers by means of ultrasonic transmission</i>
15:10	15:30	<b>WAN LILI</b> <i>Modeling the mechanical response of reinforced rubbers in taking into account heat build-up and hydrostatic stress</i>
		<b>COSTECALDE Léna</b> <i>Material characterization using complex experiments: Simple ways to describe multiaxiality.</i>
15:30	15:50	<b>DESIGAUX Antoine</b> <i>Anisotropic characterization and modeling of produced SBR sheets reinforced by oriented cellulose microfibrils</i>
		<b>HARIS Muhammad</b> <i>Evaluating dynamic mechanical characteristics, and heat generation in silica 'Green Tire Recipe' and conventional carbon black filled rubber</i>
15:50	16:10	<b>HARTUNG Felix</b> <i>Experimental and numerical investigation of multiscale rubber friction on 3D printed sinusoidal surfaces</i>
		<b>PEPIN Julie</b> <i>Understanding the crosslinking processes of a peroxide/TAIC cured FKM</i>
16:10	16:30	COFFEE BREAK
		<b>Room T.2.1</b> <b>Session 5 - Industrial applications</b> <b>Chair: JOHLITZ Michael</b>
		<b>Room T.2.2</b> <b>Session 6 - Fatigue and fracture</b> <b>Chair: BUSFIELD James</b>
16:30	16:50	<b>SCHÖNE Alexander</b> <i>Modeling and Simulation of Highly Loaded Rubber Linings Inside Positive Displacement Motors</i>
		<b>EBBOTT Tom</b> <i>Material Plane Identification and Tracking In the Presence of Large Inelasticity</i>
16:50	17:10	<b>OMNES Benoit</b> <i>Extrusion resistance of O-ring under extreme pressure: experimental and numerical analyses of rubber material</i>
		<b>DAL Hüsnü</b> <i>A Generalized Phase-field Approach for the Failure of Rubberlike Materials</i>
17:10	17:30	<b>CARACINO Paola</b> <i>The nonlinear behaviour of cords to be used in Rayon-rubber composites</i>
		<b>MARCO Yann</b> <i>Influence of curing temperature and pressure on the fatigue properties of carbon-black filled natural rubber: an analysis based on the sulfur network</i>
17:45	18:45	POSTER PITCH - Room T.2.1
20:00		ECCMR Advisory Board meeting - Dinner

## 8 September

FROM	TO		
08:30	09:10	<b>Room T.2.1</b> <b>DAS Amit</b> <i>Challenges and opportunities of smart rubbers based on dynamic reversible network</i>	
		<b>Room T.2.1</b> <b>Session 7 - Industrial applications</b> <b>Chair: MARCO Yann</b>	<b>Room T.2.2</b> <b>Session 8 - Experimental methods and characterization</b> <b>Chair: IHLEMANN Jörn</b>
09:10	09:30	<b>PLASCHKA Eathan</b> <i>Evaluating tyre tread friction using a road-wear simulator</i>	<b>EUCHLER Eric</b> <i>Revisiting the fracture-mechanical behavior of unfilled and filler reinforced elastomers by advanced experimental techniques</i>
09:30	09:50	<b>KOLIOLIOS Evangelos</b> <i>Determining the smearing wear mechanism in filled SBR tyre tread compounds</i>	<b>CASTAGNET Sylvie</b> <i>Evidence of a fracture process during decompression-induced cavitation in hydrogen-exposed EPDM from in-situ X-ray micro-tomography</i>
09:50	10:10	<b>KYEI-MANU William</b> <i>Effect of carbon black properties on the abrasion resistance of rubber compounds at low speed</i>	<b>ALBOUY Pierre-Antoine</b> <i>Probing the strain-state of the amorphous phase in elastomers: the contribution of X-ray diffraction</i>
10:10	10:40	<b>COFFEE BREAK/Poster session</b>	
		<b>Room T.2.1</b> <b>Session 9 - Smart elastomer materials</b> <b>Chair: PETRIKOVA Iva</b>	<b>Room T.2.2</b> <b>Session 10 - Experimental methods and characterization</b> <b>Chair: VERRON Erwan</b>
10:40	11:00		<b>KLÜPPEL Manfred</b> <i>How to avoid Stick-Slip and noise of lubricated rubber seals in braking systems</i>
11:00	11:20	<b>KHAJEHSAEID Hesam</b> <i>A Magneto-mechanical constitutive model for magneto-rheological Elastomers</i>	<b>GEJGUŠ Tomas</b> <i>Experimental and numerical investigation of NVH behaviour of NR – BR blend used for engine mounts of electric vehicles</i>
11:20	11:40	<b>SASSO Giacomo</b> <i>Fluid mixer with multiple degrees of freedom enabled by dielectric elastomer actuators</i>	<b>KRATINA Ondrej</b> <i>How the rubber compounds of different tire's components heat up?</i>
11:40	12:00		<b>LOGEAIS Clémence</b> <i>Influence of the compressibility on the shear response of fluorosilicone material</i>
12:00	13:30	<b>LUNCH</b>	
		<b>Room T.2.1</b> <b>Session 11 - Numerical methods</b> <b>Chair: DAL Hüsni</b>	<b>Room T.2.2</b> <b>Session 12 - Aging</b> <b>Chair: BUSFIELD James</b>
13:30	13:50	<b>HOHENBERGER Travis</b> <i>The difficulties of simulating rubber seal leakage with the mechanical finite-element method: experimental and numerical demonstrations</i>	<b>WULF Hans</b> <i>Simulation of rubber ageing using a self-organizing microstructural simulation program</i>
13:50	14:10	<b>GARCIA Mario</b> <i>Influence of material characterization on the numerical analysis of wear for rolling bodies</i>	<b>GHADERI Aref</b> <i>A Physics-Informed Multi-Agents Model To Predict Thermo-Oxidative/Hydrolytic Aging of Rubbers</i>
14:10	14:30	<b>BERGER Thomas</b> <i>An Arbitrary Lagrangian Eulerian Formulation for Reliable and Stable 3D Tire Production Simulation</i>	<b>BELTRAN Gabriel</b> <i>Exploitation of elastomer thermo-oxidative ageing knowledge through ROM-based tailored digital engineering tool</i>
14:30	14:50	<b>ANDENA Luca</b> <i>A visco-hyperelastic numerical model for the dynamic behaviour of rubbers</i>	<b>STOCEK Radek</b> <i>Getting Quick Read on Rubber Thermal Degradation</i>
14:50	15:20	<b>COFFEE BREAK/Poster session</b>	
		<b>Room T.2.1</b> <b>Session 13 - Fatigue and Fracture</b> <b>Chair: MARCO Yan</b>	<b>Room T.2.2</b> <b>Session 14 - Aging</b> <b>Chair: JOHLITZ Michael</b>
15:20	15:40	<b>LE MIRE Etienne</b> <i>Discussion of the multiaxiality of fatigue tests for elastomers: development of a large database of published works</i>	<b>VIZCAINO VERGARA María del Mar</b> <i>Physical ageing evolution of the viscoelastic properties of filler reinforced rubber measured with the torsion pendulum after a temperature change</i>
15:40	16:00	<b>DENORA Isabella</b> <i>Fracture behavior of filled elastomers: how do strain induced softening and its thermally induced recover affect the fracture toughness?</i>	<b>TAOURIT Sabrina</b> <i>Impact of chemical ageing on static mechanical behaviour of elastomers: Study of structure-property relationships</i>
16:00	16:20		
18:00		<b>Milano CitySightseeing - meeting point: conference venue</b>	
19:30		<b>SOCIAL DINNER</b>	

## 9 September

FROM	TO		
09:00	09:40	<b>Room T.2.1</b> <b>COPPOLA Christian</b> <i>Large Amplitude Oscillatory Shear of filled rubber, before and after crosslinking: an essential tool to characterize rubber/filler interactions</i>	
		<b>Room T.2.1</b> <b>Session 15 - Micro-structural investigations</b> <b>Chair: COPPOLA Christian</b>	<b>Room T.2.2</b> <b>Session 16 - Aging</b> <b>Chair: MARANO Claudia</b>
09:40	10:00	<b>MÜLLER Martin</b> <i>Influence of phase morphology on viscoelastic properties of rubber blends</i>	<b>TREIB Caroline</b> <i>Ozone ageing of PDMS coated natural rubber</i>
10:00	10:20	<b>JUHRE Daniel</b> <i>The influence of a diffuse interphase on the viscoelastic behaviour of rubber blends</i>	<b>PIRES Leticia</b> <i>Thermal aging of a fluorosilicone rubber</i>
10:20	10:50	<b>COFFEE BREAK</b>	
		<b>Room T.2.1</b> <b>Session 17 - Constitutive models</b> <b>Chair: DAL Hüsü</b>	<b>Room T.2.2</b> <b>Session 18 - Aging</b> <b>Chair: PETRIKOVA Iva</b>
10:50	11:10	<b>ÖZÜPEK Şebnem</b> <i>Finite element analysis of elastomeric bearings under compression and shear</i>	<b>REDON Adrien</b> <i>Thermo-mechanical aging of NBR: application to O-rings used in the braking system of the French high-speed train</i>
11:10	11:30	<b>KIM Sanghyeub</b> <i>A strain rate dependent constitutive model for uncured rubber</i>	<b>PATEL Ruhi</b> <i>Oxidation and ageing in block copolymers</i>
11:30	11:50	<b>LOOS Klara</b> <i>Constitutive equations for strain-induced crystallisation in elastomers: simulation of cyclic loadings</i>	<b>DUNCAN Aaron</b> <i>Anisotropy of Nitrile Butadiene Rubber induced by thermal ageing at fixed strains</i>
11:50	12:10	<b>SOTTA Paul</b> <i>Crystallization kinetics in stretched natural rubber</i>	<b>DEMMELE Benedikt</b> <i>Spatially resolved diffusion characteristics of synthetic fuels in aged NBR</i>
12:10	13:40	<b>LUNCH</b>	
		<b>Room T.2.1</b> <b>Session 19 - Micro-structural investigations</b> <b>Chair: KALISKE Michael</b>	<b>Room T.2.2</b> <b>Session 20 - Fatigue and fracture</b> <b>Chair: KLÜPPEL Manfred</b>
13:40	14:00	<b>RUTHERFORD Kirsty</b> <i>Effect of carbon black colloidal properties on the dynamical mechanical behaviour of nitrile butadiene rubber composites</i>	<b>MOUSLIH Yasser</b> <i>Fatigue life prediction of Natural Rubber: effect of multiaxiality on the fatigue life reinforcement</i>
14:00	14:20	<b>LE BAIL Jean-Baptiste</b> <i>Statistical characterization of the microstructure of microcellular polyurethane foams</i>	<b>GEHLING Tobias</b> <i>Influence of the curing state on the fatigue behavior of nitrile butadiene rubber</i>
14:20	14:40		<b>FORASACCO Rodolphe</b> <i>Understanding of initiation cracks for high performances automotive valves and fatigue life characterization on sample</i>
14:40	15:10	<b>COFFEE BREAK</b>	
		<b>Room T.2.1</b> <b>Session 21 - Constitutive models</b> <b>Chair: VERRON Erwan</b>	<b>Room T.2.2</b> <b>Session 22 - Experimental methods and characterization</b> <b>Chair: ANDENA Luca</b>
15:10	15:30	<b>ROBARD Pierre</b> <i>Development of constitutive equations for thermoplastic copolyester ether (TPEE)</i>	<b>LANG Andrej</b> <i>New laboratory tests for abrasion of tire tread compounds</i>
15:30	15:50	<b>GOUHIER Florian</b> <i>Short survey on isotropic viscohyperelastic constitutive equations for damageable filled rubberlike materials</i>	<b>BÖTTGER Sören</b> <i>Temperature dependency of the isochoric and volumetric part of the strain energy density for constitutive models of rubber</i>
15:50	16:10	<b>AKSU DENLI Funda</b> <i>Data Driven Constitutive Modelling of Rubberlike Materials</i>	<b>AZEVEDO Maurício</b> <i>Crosslinking of high consistency silicone with dicumyl peroxide: predicting curing behaviour using a rubber process analyser</i>
16:10	16:30		<b>KAUR Anureet</b> <i>The kinetic curing parameters of thiol-ene based cross-linking reaction of polychloroprene rubber through application of autocatalytic model</i>
16:40	17:00	<b>CLOSING</b>	