VII SOFT TISSUE WORKSHOP

Venue: Classroom T13, Campus Leonardo, Politecnico di Milano

Plenary Talk: 35 mins + 5 mins question

Regular Talk: 12 mins + 3 mins questions

DAY 1 WEDNESDAY 11 JUNE 2025	**08:30**	**09:15**	**REGISTRATION**	**at SPAZIO VETRATO (just in front of building 13 where room T13 is located)**
	09:20	**09:30**	**Welcome - Francesco Migliavacca**	
Morning Session-1 Chair: Anna Pandolfi	**THEME: Inference**			
	09:30	**10:10**	**Linwei Wang (Rochester Instit. of Tech.)**	*Learn-to-Personalize with Hybrid Models: Theory, Methods, and Applications*
	10:10	10:25	Dirk Husmeier (Uni. of Glasgow)	*Physics-informed machine learning for emulation of the systemic blood flow circulation*
	10:25	10:40	Giovanni Montino Pelagi (Politecnico Milan	*Towards a digital twin for myocardial ischemia: from coronary hemodynamics to cardiac perfusion*
	10:40	10:55	Roberto Piersanti (Politecnico Milano)	*Redefining the Fiber Architecture: A Breakthrough in Atrial Digital Twin Modeling*
	10:55	11:10	Yuzhang Ge (Uni. of Glasgow)	*Advanced Statistical Inference of Myocardial Stiffness: A time series Gaussian Process approach of emulating Cardiac Mechanics for real-time clinical decision support*
	11:10	**11:40**	**COFFEE BREAK**	**at SPAZIO VETRATO**
Morning Session-2 Chair: Radostin Simitev	**THEME: Perfusion & Poroelasticity**			
	11:40	11:55	Raimondo Penta (Uni. Glasgow)	*Micromechanical analysis of the effective stiffness of poroelastic composites and its application to myocardial infarction*
	11:55	12:10	Laura Miller (Uni. of Stathclyde)	*Homogenized modelling of the electro-mechanical behaviour of a vascularized poroelastic composite representing myocard.*
	12:10	12:25	Simone Pezzuto (Università di Trento)	*Model-based learning of local soft tissue contractility from limited kinematic data*
	12:25	12:40	Alberto Girelli (Cattolica del Sacro Cuore)	*Multiscale Modelling of Fluid Flow in a Lymph Node?*
	12:40	**14:00**	**LUNCH BREAK**	**at SPAZIO VETRATO**
Afternoon Session-1 Chair: Nicholas Hill	**THEME: Surgery and Modelling**			
	14:00	**14:40**	**Santi Trimarchi (Policlinico Milano)**	***Surgery and modelling: a winning marriage***
	14:40	14:55	Francesca Duca (Politecnico Milano)	*Computational study to assess hemodynamic forces in descending thoracic aortic aneurysm*
	14:55	15:10	Letizia Perri (Politecnico Milano)	*In silico models of post-dilatation in TAVI patients*
	15:10	15:25	Giulia De Campo (Politecnico Milano)	*How calcifications can impact TEVAR procedures: insights from computational analyses*
	15:25	15:40	Luca Crugnola (Politecnico Milano)	*Personalized computational hemodynamics framework to assess the long-term performance of Transcatheter Aortic Valve Implantation*
	15:40	**16:10**	**COFFEE BREAK**	**at SPAZIO VETRATO**
Afternoon Session-2 Chair: J F Rodriguez Matas	**THEME: Treatment of Arterial Disease**			
	16:10	16:25	Silvia Renon (Uni. of Glasgow)	*The importance of inelasticity when simulating balloon deployment in diseased arteries*
	16:25	16:40	Sathish Kumar & Nicholas Hill (Uni Glasgow)	*Modelling post EVAR vascular adaptations (G&R) and validation*
	16:40	16:55	Virginia Fregona (Politecnico Milano)	*How does thrombus composition influence the thrombectomy outcome? An in silico study ?*
	WELCOME DRINK AT SPAZIO VETRATO - 18.00			
DAY 2 THURSDAY 12TH JUNE				
Morning Session-1 Chair: Christian Vergara	**THEME: Cerebrovascular Pathology**			
	09:00	**09:40**	**Alain Goriely (Uni. Of Oxford)**	***Modelling cerebrovascular pathology and amyloid beta spreading in Alzheimer's disease***
	09:40	09:55	Mattia Corti (Politecnico Milano)	*Numerical Modeling of Protein Spreading and brain atrophy in Neurodegeneration*
	09:55	10:10	Jen-Feng Kuo (Uni. Of Amsterdam))	*A Matrix Differential Equation Approach for Strongly Coupled Arterial Blood Flow and Cerebral Tissue Perfusion Simulations*
	10:10	10:25	Keefe Manning (Pennsylvania State Uni.)	*Mechanical behavior of hyper-calcified cerebral embolus analogs in acute ischemic stroke*
	10:25	10:40	Simone Bonfiglio (University of Messina)	*A multiphase model for fluid dynamics in damaged tissue*
	10:40	**11:10**	**COFFEE BREAK**	**at SPAZIO VETRATO**
Morning Session-2 Chair: Raimondo Penta	**THEME: Cells, Tissue and Cancer**			
	11:10	11:25	Andrea Tonini (Politecnico Milano)	*Cardiocirculatory model personalization through data-driven approaches and uncertainty quantification*
	11:25	11:40	Peter Stewart (Uni. of Glasgow)	*A theoretical model for focal adhesion and cytoskeleton formation in non-motile cells*
	11:40	11:55	Zita Borbala Fulop (Uni. of Glasgow)	*Multiscale Analysis of Electrically Stimulated Vascularised Tumours: A Patient-Specific Theoretical and Computational Approach*
	11:55	12:10	Mariam Almudarra (Uni. of Glasgow)	*Non-Local Chemical Effects on Avascular Tumour Growth*
	12:10	12:25	Malwina Matella (Uni. of Sheffield)	*Electrical impedance spectroscopy-based oral cancer diagnosis using tissue engineering and computational models*
	12:25	12:40	Andrew Brown (Uni. of Glasgow)	*A multiscale model of material failure and its applications to soft tissue tearing*
	12:40	**14:00**	**LUNCH BREAK:**	**at SPAZIO VETRATO**
Afternoon Session-1 Chair: Peter Stewart	**THEME: Eyes**			
	14:00	**14:40**	**J F Rodriguez Matas (Politecnico Milano)**	*On inverse elasticity methods for anisotropic hyperelastic materials*
	14:40	14:55	Benedetta Fantaci (Uni. of Zaragoza)	*Keratoconus Growth Model: : A 10-Year Case Study*
	14:55	15:10	Anna Bonuomo (Politecnico di Milano)	An Experimental Investigation of the Biomechanical Effects of Epi-On Corneal Collagen Crosslinking in Porcine and Human Models
	15:10	15:25	Damiano Bertolo (Politecnico Milano)	*Stress-relaxation behaviour of the retina characterized through small punch test and computational modelling*
	15:25	15:40	Anna Pandolfi (Politecnico di Milano)	A coupled multiscale model of the human cornea accounting for the collagenous microstructure and the extracellular matrix
	15:40	15:55	Kevin Raul (Politecnico Milano)	*Numerical Simulations of Iris Biomechanics: Modeling Active-Passive Muscle Behavior*
	15:55	**16:30**	**COFFEE BREAK**	**at SPAZIO VETRATO**
Afternoon Session-2 Chair: Luca Dede	**THEME: Flow and Polymers**			
	16:30	16:45	Ivan Fumagalli (Politecnico Milano)	*Modeling cerebrospinal fluid dynamics in neurodegenerative diseases*
	16:45	17:00	Mitchel J. Colebank (Uni. South Carolina)	Simulating pulse-wave hemodynamics under the effects of vasoactivity
	17:00	17:15	Silvia Paparini (Uni. of Padova)	Shape Instabilities driven by defects with different topological charge in Nematic Polymer Networks
	17:15	17:30	Caterina Saglio (Politecnico di Milano)	*A numerical study of the electrophysiological substrate of epilepsy*
Public Lecture	**18:00**	**19:00**	**Alfio Quarteroni (Politecnico Milano)**	***Which role for computational scientists in the era of artificial intelligence?***
	The Conference Dinner will be held at Ristorante La Cuccuma - 20:00			
DAY 3 FRIDAY 13TH JUNE				
Morning Session-1 Chair: Francesco Migliavacca	**THEME: Heart**			
	09:00	09:15	Sidika Mine Toker (Eskisehir Osmangazi Uni)	*Effects of Laser Surface Processing on the Biocompatibility of a Potential Biomedical Alloy: High Entropy TiTaHfNbZr Alloy*
	09:15	09:30	Jay MacKenzie and Scott Richardson (UoG)	*A Coupled Bi-Ventricle Flow Model With Explicit Arterial Circulation*
	09:30	09:45	Michele Bucelli (Politecnico Milano)	*A partitioned solver for Purkinje-muscle coupling in cardiac electrophysiology*
	09:45	10:00	Sarah Donaldson (Uni. of Glasgow)	*A Physiologically Accurate Active Strain Model for Left Ventricular Contraction*
	10:00	10:15	Nicholas Hill (Uni. of Glasgow)	*Patient-Specific Multicompartment Darcy Flow Model: Effect of Heterogeneity and Anisotropy in Porous Parameters*
	10:15	10:30	Alessandra Corda Politecnico Milano)	*Modeling the interplay between acute myocardial ischemia and arrhythmogenesis*
	10:30	11:10	**COFFEE BREAK**	**at SPAZIO VETRATO**
Morning Session-2 Chair: Dirk Husmeier	**THEME: Myocytes and Muscle Cells**			
	11:10	11:25	Radostin Simitev (Uni. of Glasgow)	*A large population of cell-specific action potential models replicating fluorescence recordings of voltage in rabbit ventricular myocytes*
	11:25	11:40	Scott Richardson (Uni. of Glasgow)	*A first in-silico trial of quantifying the drug effects of SGLT2i in heart failure*
	11:40	11:55	Sara Galasso (Uni. of Pandova)	*An adapted tensorial decomposition for simplifying constitutive modelling of skeletal muscles*
	11:55	12:10	Kieran Boniface (Uni. Of Sheffield)	*Computational modelling of bladder outlet obstruction mechanobiology*
	12:10	**12:50**	**Guglielmo Lanzani (Politecnico Milano)**	*Intra membrane molecular phototransducers for muscle cell stimulation*
	12:50	**13:00**	**Closing Remarks**	