



## Programme: Mechanobiology of Cancer Summer School

### Day 1

09:00 – 09:45	<p><b>Guillaume Salbreux</b> - Physics of epithelial deformations Chair: Xavier Trepat</p>
09:45 – 10:30	<p><b>Short Talks</b> <b>Chair: Xavier Trepat</b> Leda Lacaria - <i>Mechanical properties and structure of cortical cytoskeleton in micropatterned breast cancer cells</i> Yago Juste - <i>The role of barotaxis in cancer cell migration</i> Jorge Barrasa - <i>Enhancing the accuracy of 3D traction force microscopy by means of a physics-based inverse method</i></p>
10:30 – 11:10	<p><i>Coffee break</i></p>
11:15 – 12:15	<p><b>Short Talks</b> <b>Chair: Marino Arroyo</b> Ryan Murphy - <i>An individual-based mechanical model of cell movement in heterogeneous tissues and its coarse-grained approximation</i> Julia Eckert - <i>Approach to measure the Intracellular Stress of Cell-Cell Junctions</i> Sarah Boyle - <i>Compressive forces in breast cancer activate RHO/ROCK-mediated cellular processes downstream of mechanosensitive ion channels</i> Pau Guillamat - <i>Spiral and aster defects in monolayers of cells under confinement</i></p>
12:15 – 13:00	<p><b>Buzz Baum</b> – Cancer cell division Chair: Marino Arroyo</p>
13:00 – 14:00	<p><i>Lunch</i></p>
14:00 – 14:30	<p><i>Free time</i></p>

14:30 – 16:30	2h walking trip
17:00 – 18:30	<b>Workshop UPC</b> Vertex modelling in biomechanics
18:30 – 20:00	<b>Workshop KCL</b> Single molecule mechanics
20:00 – 21:00	<i>Dinner BBQ</i>
21:00 – 22:00	<i>Crema</i>



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### Day 2

09:00 – 09:45	<p><b>Marija Plodinec</b> – Nanomechanical profiling of living epithelial tissues in health and disease and potential applications in routine clinical setting Chair: Johan de Rooij</p>
09:45 – 10:30	<p><b>Short Talks</b> <b>Chair: Johan de Rooij</b> Jennifer Young - <i>Assaying ECM-conferred chemoresistance on orthogonal gradient hydrogel systems</i> Inés Velázquez-Quesada - <i>Pranlukast antagonizes CD49f and reduces stemness in the MDA-MB-231 triple-negative breast cancer cell line</i> Isabelle Bourgot - <i>Impact of cancer associated fibroblasts-derived cathepsin B on breast cancer progression</i></p>
10:30 – 11:10	<i>Coffee break</i>
11:15 – 12:15	<p><b>Short Talks</b> <b>Chair: Patrick Derksen</b> Karin Jansen - <i>Basal-like breast cancer cells direct invasion by modulation of the extracellular matrix</i> Julian Eschenbruch - <i>Cell force-mediated breast cancer invasion is attenuated by basement membrane integrity</i> Thomas Waring - <i>Interrogation of acto-myosin mediated nuclear force coupling</i> Ignacio Viciano - <i>Computational Modelling of the Cell Adhesive Interactions and Search of Small Molecule PPI Inhibitors as a Potential Cancer Drugs</i></p>
12:15 – 13:00	<p><b>Peter Friedl</b> - Plasticity of adhesion and matrix guidance in cancer invasion and metastasis Chair: Patrick Derksen</p>
13:00 – 14:00	<i>Lunch</i>

14:00 – 17:00	<i>Free time</i>
17:00 – 18:30	<b>Workshop IBEC</b> Traction force microscopy
18:30 – 20:00	<b>Workshop Noviocell</b> Gel mechanics
20:00 – 20:45	<i>Free time</i>
20:45 – 22:00	<i>Dinner and Sky Watching</i>



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### Day 3

09:00 – 09:45	<b>Andrew Ewald</b> – Novel roles of cell adhesion in breast cancer metastasis Chair: Aránzazu del Campo
09:45 – 10:30	<b>Short Talks</b> <b>Chair: Aránzazu del Campo</b> Jenny Kechagia - <i>The Integrin <math>\beta</math>4-keratin link impairs mechanosensing by protecting the nucleus from mechanical loading</i> Andrew Holle - <i>Interplay between the nucleus and the cytoskeleton during self-directed breast cancer cell confined migration</i> Apeksha Shapeti - <i>Quantifying 3D invasion and matrix deformations around CCM-2 depleted angiogenic sprouts highlights the role of mechanics in CCM</i>
10:30 – 11:10	Coffee break
11:15 – 12:15	<b>Short Talks</b> <b>Chair: Pere Roca-Cusachs</b> Magnus Bauer - <i>Structural and mechanistic insights into mechanoactivation of Focal Adhesion Kinase</i> Lorna Young - <i>Beta-pix and Myosin-18a are essential for adhesion-nucleus coupling required for breast cancer cell invasion</i> Santosh Phuyal - <i>Spatiotemporal signalling of Rac1 at the endomembranes</i> Ariadna Marín - <i>Linking epithelial size tension and pressure in curved epithelial monolayers</i>
12:15 – 13:00	<b>Christina Scheel</b> – Dynamic collagen deformation drives branching morphogenesis in mammary organoids derived from human breast tissue Chair: Pere Roca-Cusachs
13:00 – 14:00	Lunch
14:00 – 15:30	Free time

15:30 – 17:00	<b>Poster Session</b>
17:00 – 18:30	<b>Workshop UMCU</b> Fundamentals of breast cancer biology
18:30 – 20:00	<b>Workshop INM</b> Chemistry of tuneable gels
20:00 – 21:00	<i>Free time</i>
21:00 – 22:30	<i>Gala Dinner</i>
22:30 – 01:30	<i>Closing celebration</i>