

MECHANOBIOLOGY OF CELLULAR SYSTEMS

MARINO ARROYO ^{*}, ANTONIO DESIMONE [†]
AND JOSE J MUÑOZ ^{*}

^{*} Universitat Politècnica de Catalunya-Barcelona Tech
Dep. Appl. Mathematics III, Laboratori de Càlcul Numèric (LaCàN)
c/ Jordi Girona, 31, 08036, Barcelona, Spain
E-mail marino.arroyo@upc.edu, www.lacan.upc.edu/arroyo
E-mail j.munoz@upc.edu, www.lacan.upc.edu/munoz

[†] Scuola Internazionale Superiore di Studi Avanzati
via Bonomea 265 , I-34136 Trieste, Italy
E-mail desimone@sissa.it, <http://people.sissa.it/~desimone/>

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ABSTRACT

This symposium aims at bringing together researchers in quantitative experimental biophysics and biology, in modeling mechanics and regulatory systems--from sub-cellular structures to tissues--, and in advanced computational methods, with the goal of fostering integrative approaches to mechanobiology of cellular systems. We place particular emphasis to contributions that may help understand the effective behavior at larger scales from elementary phenomena at lower, possibly molecular, scales.

Modeling and numerical methods are integral parts in modern experimental protocols, bring insight in the underlying physics of cellular systems, allow researchers to easily test hypothesis, and in the most optimistic scenario, may provide quantitative predictions.

Potential applications include (but are not restricted to):

- Cell motility, including force generation, sensing, behavior, and collective phenomena
- Cell and tissue rheology
- Mechanosensation
- Traction force microscopy
- Pattern formation, self-organisation, and morphogenesis
- Active polymers, networks, and motor proteins
- Cytoskeletal dynamics and genetic regulatory systems
- Embryogenesis