

# RECENT ADVANCES IN SKIN BIOPHYSICS – CONVERGENCE OF PHYSICAL EXPERIMENTS, IMAGING AND MODELLING TECHNIQUES

GEORGES LIMBERT<sup>1,2</sup>, JEAN-MARC ALLAIN<sup>3,4</sup>

<sup>1</sup> Faculty of Engineering and the Environment, University of Southampton, UK; <sup>2</sup> Department of Human Biology, Faculty of Health Sciences, University of Cape Town, South Africa  
Email: g.limbert@soton.ac.uk

<sup>3</sup> LMS, Ecole Polytechnique, CNRS, Université Paris-Saclay, FR; <sup>4</sup> Inria, Université Paris-Saclay, FR  
Email: allain@lms.polytechnique.fr

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## ABSTRACT

### Motivation

Besides its multiple physiological functions as the largest organ of the human body, the skin is essentially a complex biophysical interface separating and protecting the internal body structures from the external environment. Our skin is constantly subjected to mechanical contact interactions with a wide range of objects and devices which include clothing fabrics, footwear, seating and bedding surfaces, sports equipment, personal care products or medical devices. These physical interactions are an essential part of how humans perceive their environment for cognitive awareness, social interaction or self-preservation. Whether it is from the angle of a clinical dermatologist, a molecular biologist, a biophysicist, a tissue engineer or a computational modeler, the skin offers exciting research opportunities which ultimately could lead to new diagnosis tools and treatments, or quite simply, to products that would make us look younger or feel happier. To unravel some of the secrets of such a complex organ new integrated experimental, imaging and multiphysics computational techniques are needed and novel multiscale theories explaining particular mechanobiological processes need to be formulated and put to the test.

### Focus of the mini-symposium

The objective of this mini-symposium is to present the latest experimental, imaging and modelling techniques to characterise and predict the biophysics of the skin in health and disease, to provide a forum for open discussions and for identifying current and future research challenges. We expect presentations from industry and academia and therefore the event should provide excellent networking opportunities. The mini-symposium will be of particular interest to interdisciplinary researchers and engineers working in the medical devices, consumer goods, cosmetics, pharmaceutical, numerical simulation, sport equipment, tissue engineering and regenerative medicine sectors.