

Summer School/Careers Fair:

Skin damage: mechanisms, prevention and therapies

6th – 7th September 2022

Institut de Biomécanique Humaine Georges Charpak, Paris, France

As part of an EU funded project on *Skin Tissue Integrity under Shear* (STINTS), a two-day Summer School has been arranged. The STINTS project involves a network of academic institutions and industrial organisations with a cohort of 13 Marie Curie Fellows. Postgraduate and postdoctoral researchers, academics and industrialists are welcome to attend; registration is free but limited. The Fellows will present introductory lectures to their research areas and there will be a poster session in which they will present details of their results, and which will act as a Careers Fair. In addition, there will be lectures on various aspects of skin integrity from the senior members of the consortium. Skin condition is important since mechanical, chemical and biological interactions can be challenged when in contact with another surface e.g. immobilized persons supported on a bed or in wheelchair, amputees wearing a prostheses, and individuals with orthoses or functional medical devices attached to the skin. This can result in pressure ulcers particularly in high-risk groups e.g. people with diabetes, aging. Skin condition is also critical during its interaction with personal care products like creams, shavers, grooming devices, therapeutic lamps or massage equipment. The objective of STINTS is to improve the design and application of more effective preventative aids (mattresses, shoe insoles, incontinence products etc.) and early-stage diagnosis (non-invasive biomarkers and sensors) in order to reduce the huge societal and financial costs of pressure ulcers. The new understanding of skin behaviour is also being exploited by the application to personal care products (hydration and barrier formulations, and devices).

Tuesday 6th September

- 11:30 Registration**
- 12:00 Buffet Lunch**
- 13:15 Welcome and Introduction to STINTS**
Prof. Mike Adams (University of Birmingham, UK)
- 13:30 *Corneocytes: dead cells as the mechanical barrier of the skin surface.***
Ana Évora (University of Birmingham, UK)
- 13:45 *Molecular dynamic and thermodynamic methods for the prediction of skin barrier properties.***
Nicola Piasentin (Unilever R&D, UK)
- 14:00 *Defining sensitive skin.***
Pakhi Chaturvedi (Philips, NL)
- 14:15 *Measurement of the mechanical properties of skin.***
Zülal Kizilaslan (Eindhoven University of Technology, NL)
- 14:30 *Portable probe to rapidly assess mechanical properties of skin.***
Yisha Chen (Université de Lille, FR)
- 14:45 *Computational modelling of skin folding.***
Jessica Ralvoni (Eindhoven University of Technology, NL)
- 15:00 Break**

- 15:30** *Application of tissue biomechanics modelling to negative pressure wound therapy.*
Aleksi Orlov (Tel Aviv University, IL)
- 15:45** *Identifying early changes in skin integrity using robust biomarkers.*
Hemalatha Jayabal (University of Southampton, UK)
- 16:00** *Biophysical strategies for the early detection of compromised skin.*
Nkemji Abiakam (University of Southampton, UK)
- 16:15** *Diagnostic sensor for incipient pressure ulcers.*
Elis de Castro (Université de Lille, FR)
- 16:30** *Finite element modelling of human soft tissues.*
Alessio Trebbi (Université Grenoble Alpes, FR)
- 16:45** *Personalized modelling of the interactions between sacral soft tissues and support surfaces.*
Ekaterina Mukhina (Université Grenoble Alpes, FR)
- 17:00** **Closing Remarks**
- 17:15** **Poster Session and Reception**
- 19:00** **End**

Wednesday 7th September

- 10:00** **Arrival & Coffee**
- 10:30** **Welcome and Introduction**
Prof. Mike Adams (University of Birmingham, UK).
- 10:40** *Imaging sensitive skin in R&D of personal care devices.*
Dr Wilco Kroon (Philips, NL)
- 11:25** *Skin friction.*
Prof. Mike Adams (University of Birmingham, UK)
- 12:10** **Buffet Lunch**
- 13:10** *Skin barrier structure, properties and percutaneous absorption.*
Prof. Guoping Lian (Unilever R&D, UK)
- 13:55** *Translating technologies to support the prevention of skin damage.*
Dr Peter Worsley (University of Southampton, UK)
- 14:40** *Human soft tissue biomechanical modelling in the context of pressure ulcer prevention.*
Prof. Yohan Payan (Université Grenoble Alpes, FR)
- 15:25** **Break**
- 16:00** *Biomechanics of soft tissue injuries resulting from mechanical interaction with external medical devices.*
Dr Pierre-Yves Rohan (Institut de Biomécanique Humaine Georges Charpak, FR)
- 16:45** *Modelling and application of vibration in interaction with skin.*
Prof. Frédéric Giraud (Université de Lille, FR)
- 17:30** **Closing Remarks**
- 17:45** **Poster Session and Reception**
- 19:30** **End**

For queries and/or registration please contact Dr Simon Johnson (S.A.Johnson@bham.ac.uk)



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