

*skin*²: Exploring the Seam between our First and Second Skin

Symposium abstracts

SESSION 1

Our First Skin

Professor Paul Matts



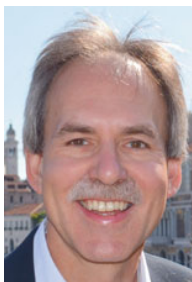
Professor Matts joined Procter & Gamble 1988 and has spent the majority of his career in R&D, conducting research and developing methods to feed the technology pipelines of brands such as Olay, Max Factor, Dolce & Gabbana, SKII and others. As Research Fellow, he has specific expertise in the measurement and modelling of skin structure, function and appearance, sun protection and the psychology of perception of skin, among other areas. He is a Visiting Professor to the UCL School of Pharmacy and to the UAL London College of Fashion, the Chair of the Cosmetics Europe Sun Protection Expert Team and a Fellow of the Royal Society of the Arts and Royal Society of Chemistry. He is a proponent of Community Dermatology and involved in and highly passionate about several projects in Africa related to the prevention / treatment of skin disease using low-cost, sustainable materials. He co-founded the NGO “Action on Podoconiosis Association” in Ethiopia in 2012, which has so far treated almost 30,000 patients with this specific form of lower leg elephantiasis.

Abstract

This presentation will set the scene for our day together, introducing and exploring the role of human skin as our ‘first skin’, unique in the animal world in facing the environment without a protective covering of hair, feathers or scales. We will consider our first skin as an entropy-regulator, managing exchange with an increasingly hostile, changing environment, as well as an organ of non-verbal signalling, speaking for us long before we open our mouths.

21st Century Skin

Professor Mark Birch-Machin



Mark Birch-Machin, PhD, is Professor of Molecular Dermatology at Newcastle University (UK), Institute of Cellular Medicine and Associate Dean of Business Development for the Faculty of Medical Sciences. He previously worked at Universities in Oregon, Paris and Toronto. He is a member of the Editorial Board of several international dermatology journals, and national/international advisory boards (including cosmetic companies) and grant committees

for skin research and cosmetic regulation. His research group focuses on the response of human skin to the environment, particularly within the context of skin ageing. He has an interest in understanding the role of mitochondria in UV and environmental-induced oxidative stress, skin cancer and the relationship between oxidative stress, nutritional status, pigmentation and skin aging as well as the science and use of sunscreens. He is also a co-inventor on multiple patents.

Abstract

Our skin is subject to stress from both internal and external factors that have the potential to cause premature ageing such as fine lines, wrinkles, loss of elasticity, sagging skin and uneven skin tone. In the 21st century, the external factors include increasing exposure to environmental pollution and sunlight, while the internal factors include an increasingly stressful lifestyle and dietary challenges. Our stressed skin experiences increased levels of damage to its DNA and the structural proteins as well as increased oxidative stress (from the generation of free radicals), all of which can lead to loss of skin structure and function. While intrinsic skin ageing driven by genetics is largely inevitable, our exposure to some of the extrinsic factors that affect the process is under our influence. We will explore this, including how we can measure damaged skin and promote skin health to combat the demands of the 21st century.

Skin in the Resource-Poor Settings

Prof Roderick Hay



Professor Hay is Emeritus Professor of Cutaneous Infection, Kings College London and Adviser (formerly Chairman) to the International Foundation for Dermatology. From 2002-2007 he was Head of the School of Medicine and Dentistry and Dean of the Faculty of Medicine and Health Sciences, Queens University Belfast (QUB) and a non-executive director of the Eastern Health and Social Services Board (Health Authority) Northern Ireland. He was Dean and Clinical Director of the St Johns Institute of Dermatology from 1995-2000 and Mary Dunhill Professor of Cutaneous Medicine, KCL from 1989-2001. He was appointed a Fellow of the Academy of Medical Sciences in 2000. He is a member of the Boards of LEpra and the Vaseline/Direct relief Healing Project.

Abstract

In resource-poor regions and countries, over 50% of the population may have skin conditions. The resulting huge workload stretches the capacity and resources of the staff and poses a significant impact on family life and finances of communities. As treatments given are frequently incorrect and a major challenge to compliance, this results in unacceptably high level of treatment failure, exceeding 70% in some areas. Solving this problem involves the development of pathways for management, training and the evaluation of diagnostic and therapeutic options, appropriate to the environment. One example is the regional dermatology training centre in Moshi, Tanzania, which provides training for medical assistants and dermatology residents from a wide range of sub-Saharan African countries. There are also other models based on shorter periods of training, e.g. in Mexico, Patagonia, Cambodia and Mali, as well as technology-enabled option of tele-dermatology.

Challenges and Opportunities

Professor Terence Ryan



Professor Ryan is Emeritus Professor of Dermatology at Oxford University and Oxford Brookes University. A member of all governing bodies of his profession, he has held various positions including President of the International Society of Dermatology and Chairman of the International Foundation of Dermatology. He is currently Chairman of two International Organisations promoting Community Dermatology – the *Taskforce Skin Care for All: Community Dermatology* and the *Global Initiatives for Traditional Systems*. Professor Ryan has played a role in seeking solutions to skin care on all five continents with both medical and nursing professions. His approach to improving skin treatment has included wound healing and tropical disease, for which he has received many international awards. He has led and initiated skin care both as a technology and an attitude, always aware of the *look good, feel good factor* and concerned that *quality of life and participation* be taken into account in managing defects.

Abstract

The **challenges** are to provide all that the skin needs. This must be done for all: infants, adolescents, adults and elderly, for the fat and thin and all for the people of all colours. It must be done for both sexes, in all environments. It has to happen in the culture inclusive of religion, sexual orientation and fashion. It should include training of all those working with the skin at its interface with clothing, and working with clothing itself. The greatest needs are found in those with disease and disfigurement, with failure of other organs besides the skin, including eyesight and the brain, acutely or chronically.

The **opportunities** are linked to interventions and depend on the technologies of care, as well as on the attitudes to care. Empathy and kindness, even friendliness, could out-strip science in the effectiveness of meeting needs of an individual or a group.

SESSION 1 CHAIR

Professor Danka Tamburic



Professor Tamburic is the first Professor of Cosmetic Science in the UK and the founder of the first UK university degree solely devoted to cosmetic industry, the BSc Cosmetic Science at London College of Fashion. The course, developed in 2000, has evolved into an integrated master's degree in 2012.

Professor Tamburic is a leader of the Cosmetic Science Research Group and a member of the Better Living research hub at LCF. She has extensive experience in the area of skin research, including pharmaceutical and cosmetic aspects, with well over 100 research outputs in the public domain. She has also contributed to book chapters, patent applications and pedagogic papers. Her research interests encompass the use of novel technologies in topical formulations and the assessment of various aspects of cosmetic product efficacy. She is also engaged in multi-disciplinary research, including the application of 3D printing technology in cosmetic science.

SESSION 2

Our Second Skin

Professor Roy Sandbach



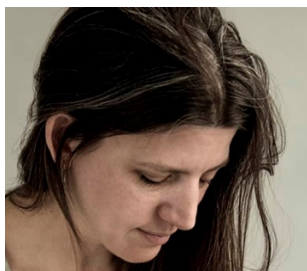
Until September 2017, Professor Sandbach was Director of the National Innovation Centre for Ageing at Newcastle University. He remains engaged with the University as Professor of Practice in Ageing Science & Innovation. Previous to that, Roy spent 31 years with the Procter & Gamble Company, holding global R&D positions in the UK, Europe and Asia, and leading innovation programmes across the world. He has several registered patents, one of them the basis of a large business in the US. Nationally, Roy is president of the Royal Society of Chemistry Industry Council. He chairs the National Smart Specialisation Hub and sits on the BEIS Advisory Board for Science & Innovation Audits. He holds further visiting Professor positions with Cranfield University and Central St. Martin's College of Art & Design, London. Roy was awarded the OBE in the Queen's Birthday Honours 2017 for services to science, innovation & skills.

Abstract

It was Mark Twain who said "Clothes make the man (or woman). Naked people have little or no influence on society". Was he right? Are clothes our 'second skin'? Or more than that? In this talk, I will take a brief look at the functional and emotional relationships that we have day-to-day and year-by-year with our clothes. I will also ask what role our 'second skin' really plays in today's changing world.

21st Century Clothing

Liz Ciokajlo Squire



Liz Ciokajlo is a footwear designer and researcher, bringing years of experience working as a product, furniture and fashion accessories designer to her practice and her company OurOwnsKIN.co.uk. Her work focuses on bio-fabricated and natural materials, 3D print technologies, the body and how these will alter footwear constructions. She has worked on innovation projects with footwear companies (Clarks), on research teams (King's College London) and exhibits internationally, most recently commissioned by the MoMA (Museum of Modern Art) for *Items: Is Fashion Modern*. Having graduated from London College of Fashion with Masters of Fashion Footwear in early 2013, she is currently undertaking a part-time PhD research degree at the same college, looking into the evolution of manufactured design form using grown materials.

Abstract

20th century designers sourced mass produced textiles, plastic matter and animal skins to sympathetically manipulate matter into garments to cover our skin. 21st century clothing design is being characterised by additive manufacturing processes and bio-materials. These processes are sometimes so fine that the line between material and design construction becomes blurred. This talk will explore the question: can we in the 21st century learn from our own skin structures and inspire material and design constructions, which then perform as a responsive extensions to our bodies?

Challenges and Opportunities: Smart textiles as novel man-made skins

Dr Veronika Kapsali



Dr Kapsali is a Reader in Material Technology and Design at London College (LCF) of Fashion, where she is developing novel biomimetic approaches to design and innovation within the textile industry that intersect biology, material engineering and textile design. She is an LCF graduate who was awarded a PhD scholarship to study engineering design at Bath University. Her practice intersects academic and manufacturing sectors, both within her role as Reader and as co-director of MMT Textiles Limited and inventor of INOTEK™ (an award winning biomimetic textile platform that draws on ambient moisture to trigger reversible mechanical changes in the fabric structure). Veronika is a bestselling author in industrial design and works extensively with private and public organisations on an international scale.

Abstract

Driven by human ingenuity, the production and distribution of textiles is among the oldest and most innovative industrial sectors. Today, the textile industry is defined by numerous application areas including apparel, hygiene and medical. Experimental research and development efforts at the juncture of material, textile and information disciplines have led to the development of a novel, function-led space known as *smart textiles*. Fabrics emerging from this field are embedded with technologies that offer new and unconventional properties such as sensing and actuation. These invite designers, technologists and wearer/users to reimagine the role of textiles as they are applied onto the body. This talk provides an overview of current state of art on smart textiles and narratives emerging from body applications.

SESSION 2 CHAIR

Professor Jane Harris



Professor Harris is Associate Dean of Research at London College of Fashion. Her Doctoral study established novel approaches to digital imaging design and creative computing disciplines, informed by an established textile and material practice. An experienced Principal Investigator on UK Research Council awards, Professor Harris has also received Fellowships from the National Endowment for Science Technology and the Arts (NESTA), the Arts Foundation and awards from the Arts Council of England, the Rootstein Hopkins Foundation and Channel 4. An Advisor and Peer Reviewer to the European Commission for ICT (FP7 & Horizon 2020), she is also a member of the AHRC Peer Review College. She has advised the EPSRC, the Arts Councils of England (ACE) and Scotland, the Crafts Council and worked extensively in the UK and international HE sector, including as Visiting Professor of Design Research, Geneva University of Art & Design.

SESSION 3

The Seam: Creative Aspects

Professor Maria Carolina Garcia



Maria Carolina is Professor of Image Theory, Culture and Convergence and the Head of Design and Social Media at Centro Universitário Belas Artes de São Paulo, Brazil. She is a fashion expert whose career was built towards the combination of academic studies, market skills and the development of an international fashion network, as well as the ability to lead multi-ethnic work groups. As an author and lecturer on Latin American fashion culture, Maria Carolina is a visiting professor at Colegiatura Colombiana (Medellín, Colombia) and Universidad ORT (Montevideo, Uruguay). She is a founding member of the Brazilian Association of Fashion Studies and Research (ABEPEM) and leads the Research Group on Design and Convergence, registered at the National Council of Scientific and Technological Development (CNPq).

Abstract

This talk explores the ascension of Latin American slum lifestyle from the creative economy perspective, tracing it back to ethnic roots as well as urban development. The creative seam between body and culture will be discussed through the way that low income Latin American women use traditional wisdom on native plants and herbs, body shaping, waxing and tanning

processes. The main goal is to observe how slum lifestyle became a way for women not only to increase their attractiveness, but, above all, to promote their empowerment. In order to do so, this study borrows Aby Warburg's *Mnemosyne Atlas* methods to analyse entertainment activities, influencers' looks, beauty ideals and social media posts, showing emerging trends that are fueling Latin American fashion, particularly during the summer.

The Seam: Psychological Perspectives

Dr Aurora Paillard



Dr Paillard is a Senior Lecturer in Psychology and the Course Leader of the BSc (Hons) Psychology of Fashion at UAL London College of Fashion. Her main research interests involve Applied Psychology to Fashion. In particular, she is interested in sensory perception (sensory physiology, sensory perception and cross-modality), body image and consumer behaviour (consumer decision-making, brand equity, sensory branding). She has published 20 peer-reviewed articles to date and presented her work in international conferences.

Abstract

This presentation will explore the psychological perspectives of our 'second' skin, namely the makeup and clothes we use to cover our 'first' skin. The first part of the talk will explore the impact of makeup and clothing on people's wellbeing. An emphasis will be placed on the factors affecting patients' wellbeing and current initiatives taking place in hospitals to enhance it. Finally, future initiatives for patients and disabled people's wellbeing will be suggested. The second part of the presentation will focus on performance and discuss the effect of makeup and clothes on people's effectiveness in performing certain tasks. From wellbeing to cognitive performance, this presentation will explore the psychological impact of our second skin.

The Seam: Technological Opportunities

Professor Reinhold Dauskardt



Reinhold Dauskardt is the Ruth and William Bowes Professor of the Department of Materials Science and Engineering, the Department of Mechanical Engineering and the Department of Surgery in the Stanford School of Medicine. He is a Visiting Professor in the School of Materials Science at the Nanyang Technical University in Singapore. He and his research group have worked extensively on integrating new hybrid materials into emerging device, nanoscience and energy technologies and also on the biomechanical function and barrier

properties of human skin and other soft tissues. He has won numerous awards including the Henry Maso Award from the Society of Cosmetic Chemists for fundamental contributions to skin science (2011), the IBM Shared University Research Award (2011), an IBM Faculty Award (2006), the ASM International Silver Medal (2003), an Alexander von Humboldt Research Award (2002), and the U.S. Department of Energy Outstanding Scientific Accomplishment Award (1989).

Abstract

I will provide a perspective on the barrier and biomechanical function of human skin that allows new understanding of the critical barrier function of skin needed for wellness, its “feel,” firmness and cosmetic appearance. By focusing on the outer layer of skin, the stratum corneum, we are able to draw remarkable conclusions about the essential seam between our body and the outside world. This includes not only cosmetic aspects but also potentially damaging exposures like solar UV light. In addition, it is crucial for understanding the perception of “mechanical” exposures to the surfaces of fabrics in contact our bodies. I will conclude by commenting on prospects for “smart” fabrics that mediate direct communication through our skin. In addition to sight, hearing, taste, smell and touch (haptics), humans possess other sensory modalities: temperature (thermoception), pain (nociception), balance (equilibrioception), vibration (mechanoreception) and various internal stimuli (e.g. hunger and thirst). Interestingly, while our lives depend critically on these multiple senses, they are nearly all ignored in modern communication modalities, with *electronic communications limited to only sight and sound*. We propose to expand the potential for modern human communication based on an entirely new somatosensory communication platform that involves the perception of sensory stimuli through the human skin. This may be a new frontier for the design of future smart communicating fabrics, clothing and fashion.

SESSION 3 CHAIR AND CLOSING REMARKS

Professor Paul Matts