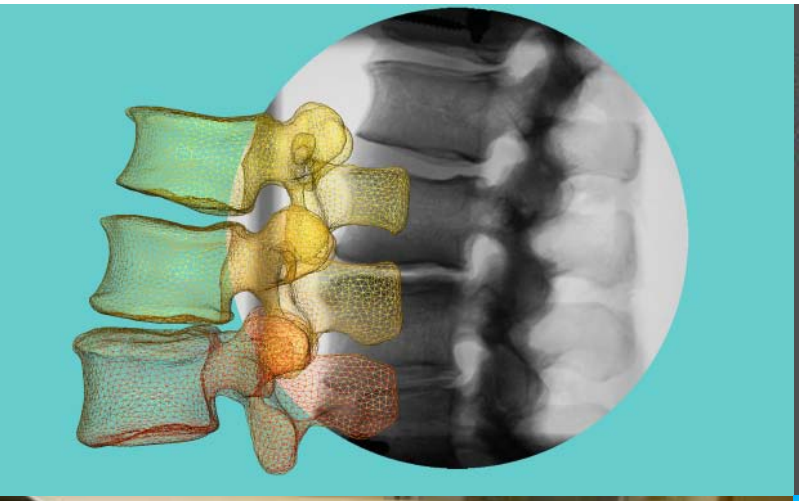
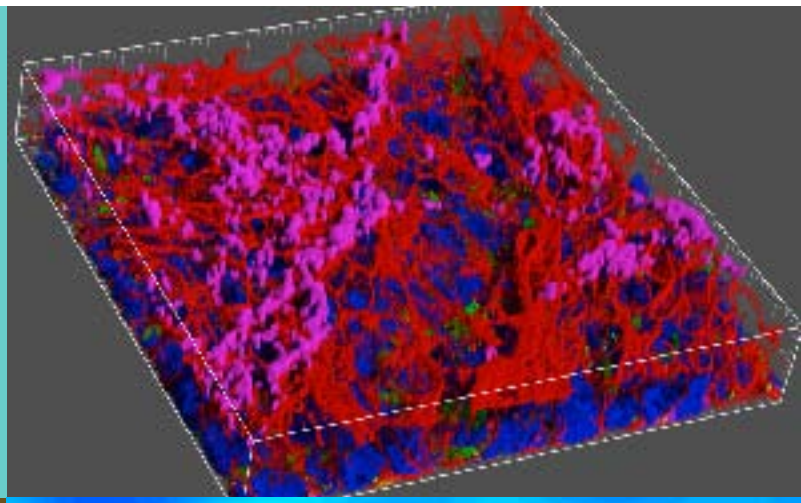
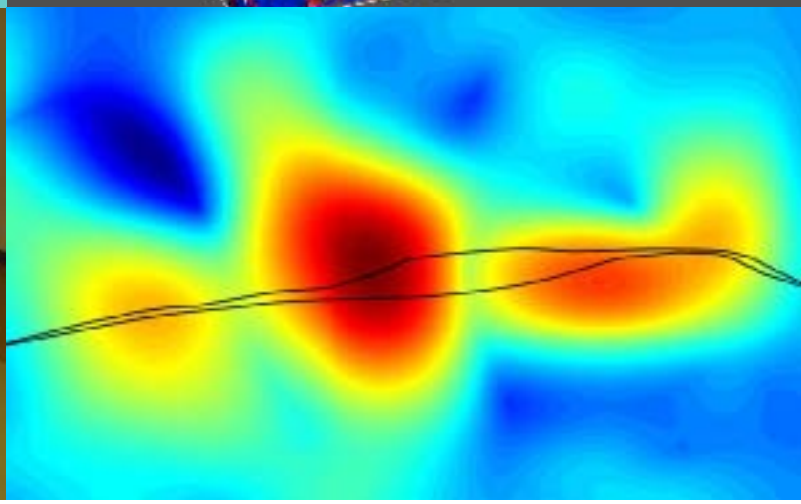
RESEARCH DAY 2012

Health Sciences and Technology D-HEST

Monday, 4 June 2012, 08:30
ETH Zürich, Main Building, HG F 1

A day of interdisciplinarity and lively speed presentations



Department of
Health Sciences and Technology

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Program

08:30	Registration
09:00	**Welcome Address** Prof. Dr. Roland Siegwart, Vice President Research and Corporate Relations, ETH Zurich
09:05	**Introductory talk** Prof. Dr. Wolfgang Langhans, Head of Department D-HEST
09:15	**Speed Presentations**: Medical Engineering 1
10:15	**Photo Session** (all participants)
10:30	Coffee Break
11:00	**Speed Presentations**: Medical Engineering 2
11:30	**Keynote** Dr. Klara Sekanina, Director, Innovation Promotion Agency (CTI), Federal Department of Economic Affairs (FDEA)
12:00	Buffet Lunch and **Graduate Session**
13:30	**Lab Tours**: Food and Nutrition
15:15	**Speed Presentations**: Food and Nutrition
15:45	Coffee Break
16:15	**Speed Presentations**: Neurosciences
16:45	**Speed Presentations**: Movement Sciences and Sport
17:15	**Panel Discussion** • Dr. Klara Sekanina • Prof. Urs Boutellier • Prof. Christophe Lacroix • Prof. Martin Schwab • Prof. Christian Wolfrum • Jenna Denyes (Doctoral student) Moderator: Prof. Ralph Müller
17:45	**Apéro riche**

More information at www.hest.ethz.ch/news/researchday/2012

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Health Sciences and Technology

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Speed Presentations: Medical Engineering 1

Session Chair: Ralph Müller

First Name	Name	Title	Professorship
Urs	Keller	Rehabilitation Robot for Children with Motor Impairments	Riener
Anna	Pagel	Integrating actuated knee exoprostheses into the human sensory-motor system	Riener
Dario	Wyss	Advanced robotic gait training with additional degrees of freedom	Riener
Kaspar	Leuenberger	Long-Term Activity and Movement Monitoring in Neurological Patients	Gassert
Jean-Claude	Metzger	Robot-Assisted Assessment and Therapy of Hand Function after Neurological Disorder	Gassert
Bogdan	Vigaru	High-fidelity haptics to investigate fine motor control	Gassert
Raphael	Zimmermann	Cortically-driven assistance adaptation during sensorimotor training	Gassert
Stefan	Dudli	Investigation of post-traumatic intervertebral disc degeneration in a novel full-organ disc / vertebra culture model	Ferguson
Ilsoo	Koh	The effects of vertebroplasty on fractured vertebral body under multi-axial loading cases	Ferguson
Giacomo	Marini	Characterization of the intervertebral disc response to impact loading	Ferguson
Jochen	Walser	Cartilage Tissue Engineering for ORL Applications	Ferguson
René	Widmer	Simulation of Biomaterial Flow Through Porous Trabeular Bone	Ferguson
Sandro	Badilatti	In Silico Bone Adaptation In Augmented Human Vertebrae	Müller
Roberto	Carretta	Post-yield mechanics of single trabeculae - a combined experimental and computational approach	Müller
Ilaria	Chiapparini	Cell-based Framework for Nanoscopic Bone Imaging and Computational Fluid Dynamics in Osteoporosis Research	Müller
David	Christen	Nonlinear failure prediction in human bone - a clinical approach based on high resolution imaging	Müller
Alina	Levchuk	In silico framework for in vivo prediction of patient-specific bone adaptation	Müller
Laura	Nebuloni	Monitoring of angiogenesis in applications of tissue engineering through time-lapsed imaging of the	Müller
Luc	Nimeskern	Functional Characterization of Auricular Cartilage in Tissue Engineering and Regenerative Medicine	Müller
Andreas	Truessel	Single cell microfluidic imaging for spatial mapping and quantification of gene expression in an in vivo model of bone	Müller
Jolanda	Vetsch	*In silico* modeling of bone perfusion culture	Müller
Alexander	Zwahlen	Multi-scale bone failure prediction in clinical scenarios of	Müller
Jennifer	Cadby	Effects of mechanical loading and unloading on tendons	Snedeker
Gion	Fessel	Mechanical Effects of Age Related Cross-Links in Tendon	Snedeker
Yufei	Li	Functional multi-scale imaging of tendon	Snedeker
Xiang	Li	A novel Silk/TCP based scaffold with PEEK anchor for ACL	Snedeker
Marco	Senteler	Effects of sagittal alignment on intervertebral disc loading	Snedeker

Speed Presentations: Medical Engineering 2

Session Chair: Peter Wolf

First Name	Name	Title	Professorship
Rami	Mhanna	Engineering Chondrogenic Micro-Environments for Tissue Engineering Applications	Zenobi-Wong
Christopher	Millan	Engineering Cell-Cell Interactions for Cartilage Regeneration	Zenobi-Wong
Deborah	Studer	Novel bio-printed co-culture systems for investigating hypertrophy suppression during MSC chondrogenesis	Zenobi-Wong
Lina	Aires	Balancing Forces: Controlling the focal adhesion proteins' nuclear translocation	Vogel
Ima	Avalos	Functional implications of FimH mediated catch bonds in	Vogel
Melanie	Burkhardt	How surface topographies direct blood activation and coagulation processes thereby creating unique niches for cells to assemble new tissue	Vogel
Philippe	Emge	The Effect of Bacterial Colony Size and Fluid Flow on Quorum	Vogel
Florian	Herzog	The Focal Adhesion Kinase as a Mechanosensor	Vogel
Zhe	Lin	hMSCs differentiation on 3D ECM Scaffolds	Vogel
Cameron	Moshfegh	Guided Embryonic Stem Cell Differentiation	Vogel
Daniela	Ortiz Franyuti	CD4+ Lymphocyte activation in the context of the complex 3-dimensional lymph node structure: An in-vitro study	Vogel
Ehsan	Sadeghipour	Employing Micro Devices to Understand the Forces of Cell-	Vogel
John	Saeger	Mechanoresponsive fluorescent probes	Vogel
Dirk	Steuerwald	Synergy of Molecular Shuttles in Microfluidics	Vogel
Yang	Zhang	Extracellular Matrix under Mechanical Strain	Vogel

Speed Presentations: Food and Nutrition

Session Chair: Markus Schuppler

First Name	Name	Title	Professorship
Nigel	Beaton	Tusc5 Regulates Insulin Stimulated Glucose Uptake by Facilitating Glut4 Membrane Fusion	Wolfrum
Gerald	Grandl	The Role of Extracellular Matrix in Preadipocyte Differentiation, Adipose Tissue Plasticity and the Metabolic	Wolfrum
Hansjoerg	Moest	Cell surface proteins in the adipose tissue	Wolfrum
Eva	Röder	Regulation of adipocyte metabolism	Wolfrum
Matthias	Rosenwald	inducible brown adipocytes - origin and function	Wolfrum
Anna	Tomaszewska	Mature adipocyte function and progression of metabolic	Wolfrum
Ulrike	Stadlbauer	The role of peptide tyrosine-tyrosine (PYY) in satiation	Langhans
Punjabi	Mukesh	Neural mechanisms involved in the satiation effect of peripheral glucagon like peptide-1 administration	Langhans
Elnaz	Karimian Azari	Intestinal fatty acid oxidation	Langhans
Gudrun	Schober	Intestinal Fatty Acid Oxidation and Eating	Langhans
Sandra	Giovanoli	Experimental investigations of the neuropathological interaction between developmental neuroinflammation and	Langhans
Tamara	Bucher	External influences on food choice	Siegrist
Christina	Hartmann	Food Panel Switzerland	Siegrist
Selma	L'Orange Seigo	Public perception and communication of Carbon Capture and Storage (CCS) in Switzerland	Siegrist

Speed Presentations: Neurosciences

Session Chair: Anita Buchli

First Name	Name	Title	Professorship
Katharina	Gapp	Study of the Impact of Early Chronic Stress on Behavior Across Generations in Mice	Mansuy
Eloïse	Kremer	DNA hydroxymethylation in the brain and its importance for memory formation	Mansuy
Osvaldo	Mirante	Distinct regulation of NMDA receptor-dependent LTD by PP1 at thalamic and cortical inputs to the amygdala	Mansuy
Safa	Mohanna	The role of the memory-associated gene KIBRA, a novel player in brain plasticity	Mansuy
Bisrat	Woldemichael	The role of micro-RNAs in the regulation of learning and	Mansuy
Sarah	Beyeler	bHLH transcription factors in glioma:Modulation of differentiation and proliferation by E proteins	Raineteau
Roberto	Fiorelli	Characterization of GFAP-expressing Neural Stem Cells of the adult spinal cord	Raineteau
Lukas	Jaeger	Supraspinal Contribution to Lower Limb Motor Control in Healthy Subjects and Neurologic Patients with Gait	Riener
Ximena	Omlin	Effect of Multimodal Stimuli on Sleep	Riener
Lukas	Bachmann	Brain Stem Systems and Spinal Cord Injury	Schwab
Stella	Kramer	confidential	Schwab
Andre	Schmandke	confidential	Schwab
Nina Kristin	Thiede-Stan	confidential	Schwab
Thomas	Wälchli	Nogo-A is a negative regulator of CNS angiogenesis	Schwab
Flora	Vajda	confidential	Schwab

Speed Presentations: Movement Sciences and Sport

Session Chair: Christina Spengler

First Name	Name	Title	Professorship
Katrin	Stadelmann	Sleep EEG alterations at moderate altitude	Boutellier
Reto	Niedermann	Prediction of human body temperature using non-invasive measurement methods	Boutellier
Nicole	Ruch	Objective measurement of physical activity in children	Boutellier
Michael	Villiger	Virtual reality rehabilitation in spinal cord injury patients	Boutellier
Philipp	Eichenberger	Asthma and Exercise - mechanisms of short and long-term	Spengler
Sabine	Illi	New insights into mechanisms of respiratory muscle training gained from compartmental chest wall volume changes	Spengler
Thomas	Wüthrich	Mechanisms of Respiratory Limitations to Exercise	Spengler
David	Aguayo	Exercise-specific improvements in human skeletal muscle regenerative potential	Toigo/Boutellier
Elmar	Anliker	Maximum ground reaction force in relation to tibial bone strength and their adaptability to jumping exercise in healthy young and adult individuals	Toigo/Boutellier
Sandro	Müller	Concurrent training for strength and endurance	Toigo/Boutellier
Giuseppe	Pichierri	Cognitive-motor interventions in older adults	de Bruin/Murer
Andrea	Schärli	The development of postural and gaze control in children	Murer
Georg	Rauter	The M³Trainer-An intelligent multimodal robotic trainer for human motor learning	Riener
Roland	Sigrist	Multimodal Feedback in Motor Learning	Riener