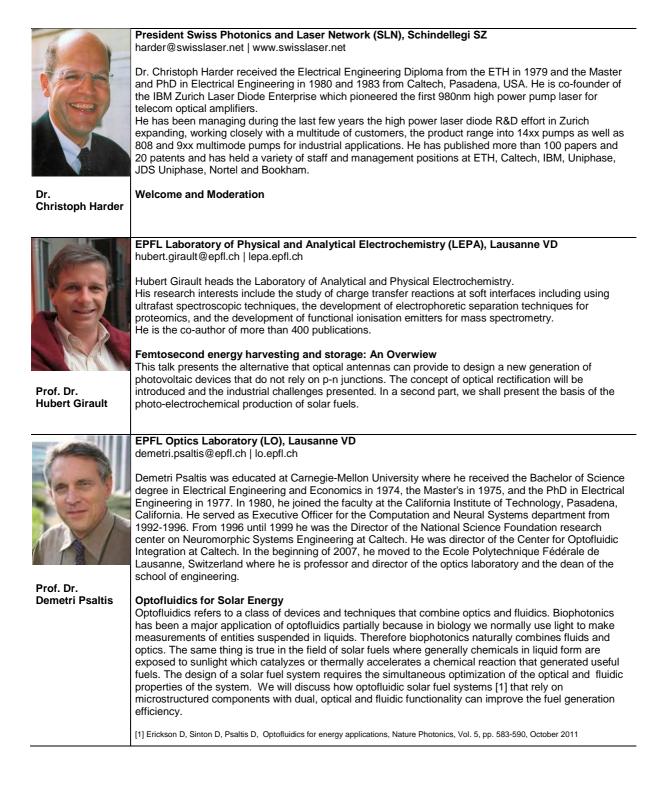




Femtosecond energy harvesting and storage

must

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Jacques-Eduard. Moser is titular professor of physical chemistry since 2005 at the Ecole Polytechnique Fédérale de Lausanne (EPFL). He graduated in 1982 in chemical engineering and earned in 1986 his PhD at EPFL under the guidance of Michael Grätzel. He joined then the Eastman-Kodak Corporate Research Laboratories in Rochester (NY, USA). He was appointed lecturer at EPFL in 1992 and was awarded the habilitation in 1998.
Third-generation photovoltaic cells: Beyond the present state-of-the-art Present 1st and 2nd generation photovoltaic products based on silicon and thin films technologies are
hampered by a ~33% power conversion efficiency limit and hardly allow for direct generation of electricity at a capital cost inferior to 1 \$/ Wp. The energy conversion potential of advanced approaches for improving photovoltaic performance based on recent fundamental findings will be outlined.
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Natalia Del Fatti is professor at University Lyon 1 where she co-founded the FemtoNanoOptics group. She has more than 15 years experience in plasmonics and ultrafast dynamics of metals and nanomaterials, and pioneered the field of linear and nonlinear optical spectroscopy of single nano- objects. Her current research interests include non-linear optics, linear and nonlinear plasmonics and nano-physics (nano-optics, -electronics, -acoustics and -thermics).
Ultrafast nonlinear plasmonics in metallic and hybrid nanoparticles Metal and metal-based hybrid nanoparticles are very promising for linear and nonlinear plasmonic applications. They also raise many fundamental questions on the impact of confinement and material interfacing on their electronic and vibrational responses. Ultrafast optical nonlinearity of a single metal
nanoobject and charge transfer in metal-semiconductor nanoparticles will be discussed on the bases of experimental studies performed using femtosecond and spatial modulation spectroscopies.
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Tony Kaiser graduated from University of Zürich with a PhD in Physical Chemistry. During his professional career he held several R&D management positions with BBC, ABB and Alstom. Since 1st June 2010, he is with Consenec AG, Baden-Dättwil. His current functions include consultancy for Alstom Power, President of the Federal Energy Research Commission (CORE), and Director of the <i>Energie Trialog Schweiz</i> .
Challenges of the nuclear power phase-out in Switzerland Substituting the 40% share of nuclear power in Switzerland's electricity supply while at the same time adhering to the CO2 emissions reduction targets, poses a big challenge to the country in terms of renewable power growth. Strong efficiency gains are expected to lead to a stabilization of electricity consumption and to a further <i>decoupling</i> of energy growth from economic growth.
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Jan Dorn studied chemistry at the Philipps-Universität in Marburg where he received his diploma. The topic of his diploma thesis in the group of Prof. Motzkus was "Two-photon-induced cleavage of coumarin dimers using femtosecond and nanosecond pulses" where he studied the non-linear photochemistry of organic compounds which can be used as linkers for drug delivery in ophthalmology. For the work on his doctoral thesis he moved to the Max-Planck-Institute for Polymer Research in Mainz where he received his doctor's degree in 2010. His scientific focus was on single molecule fluorescence microscopy and single particle tracking in biomimetic polymer membranes. Since 2010 Jan Dorn is a project leader at the Centre for Applied Nanotechnology in the area of nanostructured materials for photovoltaics.
Nanomaterials for energy conversion and energy harvesting Nanostrucutred materials open up new fields of applications for energy harvesting and energy conver- sion. Especially the interactions of light with nanostructured matter of comparable dimensions to the wavelength allow for the observation of effects which can be exploited for energy conversion. The talk presents some of the materials developed by CAN GmbH in the context of optical technologies.
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Hans B. (Teddy) Pűttgen holds the Energy Systems Management Chair at the. Upon his arrival at EPFL, in April 2006, he also became the inaugural Director of the Energy Center at EPFL.
Future of PV in Switzerland: Policy and incentives The Energy Center is a university-wide and cross-disciplinary organization with the responsibility of coordinating all R&D activities on campus related to energy. EPFL has a very broad energy portfolio located within major laboratories in all five major Facultés (Schools), ranging, for example, from electric power production, distribution and end use to controlled fusion, from hydropower generation to
photovoltaics, from building technologies to thermal turbo-machinery. The Energy Center also aims to incorporate R&D activities related to economics of energy and public policy.