1971.

08:00–12:00, 13:30–16:00 **Registration,** *South Foyer*

Weißer Saal

Joint

08:30–10:00
JTh1A • Keynote Session III

JTh1A.1 • 08:30 Keynote
Solid State Lighting: Opportunities and Challenges, Klaus P. Streubel[1]; [1]*Osram Licht AG, Germany.* LEDs have become the dominating light source in many applications such as mobile devices, displays or laptop computers. They also play a significant role in the area of general lighting. In this presentation we will discuss the success stories of LEDs in lighting, the challenges and the opportunities in future solid state lighting systems.

JTh1A.2 • 09:15 Keynote
Optical Properties of Industrially Mass-produced Crystalline Silicon Solar Cells and Prospects for Improvements, Pietro Altermatt[1], Yifeng Chen[1], Yang Yang[1], Adnan Ali[2], Pierre J. Verlinden[1]; [1]*Trina Solar Limited, China;* [2]*Department of Physics, GC Univ. Faisalabad, Pakistan.* The optical properties of mass-produced crystalline Si solar cells are reviewed and the requirements and constraints for their improvements by modern optical methods are outlined from the perspective of one of the largest manufacturers.

10:00–10:30 **Networking and Coffee Break,** *Großer Saal*

Telemann-Saal

Optical Nanostructures and Advanced Materials for Photovoltaics (PV)

10:30–12:30
PTh2A • Ordered and Disordered Structures for Light Management
Presider: Ning Dai; Chinese Academy of Sciences, China

PTh2A.1 • 10:30 Invited
Total Absorption in Structured Ultrathin Semiconductor Layers, C. Martijn de Sterke[1], Bjorn C. Sturmberg[1], Teck K. Chong[2], Duk-Yong Choi[2], Thomas P. White[2], Lindsay C. Botten[2], Kokou B. Dossou[3], Christopher G. Poulton[3], Kylie R. Catchpole[2], Ross C. McPhedran[1]; [1]*Univ. of Sydney, Australia;* [2]*Australian National Univ., Australia;* [3]*Univ. of Technology Sydney, Australia.* We show that essentially total absorption can be achieved in ultrathin layers of a modestly absorbing semiconductor using a grating geometry. Fabrication requires standard techniques and structured metal elements are not required.

PTh2A.2 • 11:00
A Green's Function Based Inverse Method to Perceive Gratings that Critically Couple Light into Solar Cells, Aimi Abass[1], Stefan Nanz[1], Carsten Rockstuhl[1]; [1]*Karlsruher Institut für Technologie, Germany.* An analytical method for inverse modelling an optimum grating structure that critically couples light into guided modes is developed. This paves the way for inverse modelling optimum surface textures for solar cell absorption enhancement.

PTh2A.3 • 11:15
Absorption Enhancement Using Surface Textures Defined by a Monolayer of Tailored Nanospheres, Stefan Nanz[1], Aimi Abass[1], Peter Piechulla[2], Alexander N. Sprafke[2], Ralf Wehrspohn[3,2], Carsten Rockstuhl[1]; [1]*Karlsruhe Inst. of Technology, Germany;* [2]*Martin Luther Univ. Halle-Wittenberg, Germany;* [3]*Fraunhofer Inst. for Mechanics of Materials, Germany.* We numerically explore a bottom-up approach using a monolayer of nanospheres to define an optimum surface texture for light trapping. The impact of nanosphere size distributions on the defined surface's scattering response is studied.

Schiller-Saal

Solid-State Lighting (SSL)

10:30–12:15
SSTh2B • Flexible OLEDs
Presider: Jang-Joo Kim; Seoul National Univ., Korea

SSTh2B.1 • 10:30 Invited
Improving the Efficiency of Flexible Organic Light-emitting Diodes via Alternating High- and Low-index Layers, Seunghyup Yoo[1], Jaeho Lee[1], Tae-Hee Han[2], Dae Yool Jung[1], Jeongmin Seo[1], Hong-Kyu Seo[2], Hyunsu Cho[3], Eunhye Kim[1], Jin Chung[1], Min-Ho Park[2], Sung-Yool Choi[1], Taek-Soo Kim[1], Tae-Woo Lee[2]; [1]*Korea Advanced Inst of Science & Tech, Korea;* [2]*Pohanh Univ. of Science and Technology (POSTECH), Korea;* [3]*Electronics and Telecommunications Research Inst. (ETRI), Korea.* We present strategies to increase the efficiency of flexible organic light-emitting diodes using planar high-index and low-index layers sandwiching an ultra-thin transparent electrode such as graphene or metallic film.

SSTh2B.2 • 11:00
ITO-free Flexible Organic Light Emitting Diodes with Enhanced Light Outcoupling, Kyung Min Lee[1], Romain Fardel[1], Tae-Wook Koh[1], Joshua Spechler[1], Jake Herb[1], Craig Arnold[1], Barry P. Rand[1]; [1]*Princeton Univ., USA.* We introduce flexible organic light-emitting diodes on silver nanowire substrates with enhanced light outcoupling through the use of porous polyimide (p-PI) films. The p-PI extracts substrate and waveguide losses without electrical alteration.

SSTh2B.3 • 11:15
Flexible Organic Light-emitting Diodes with Novel Transparent Electrodes, Jianxin Tang[1]; [1]*Soochow Univ., China.* We present highly power-efficient flexible organic light-emitting diodes by combining nanostructured metallic transparent conductor on plastic substrates, leading to a power efficiency over 160 lm/W with angular color stability.

Händel-Saal

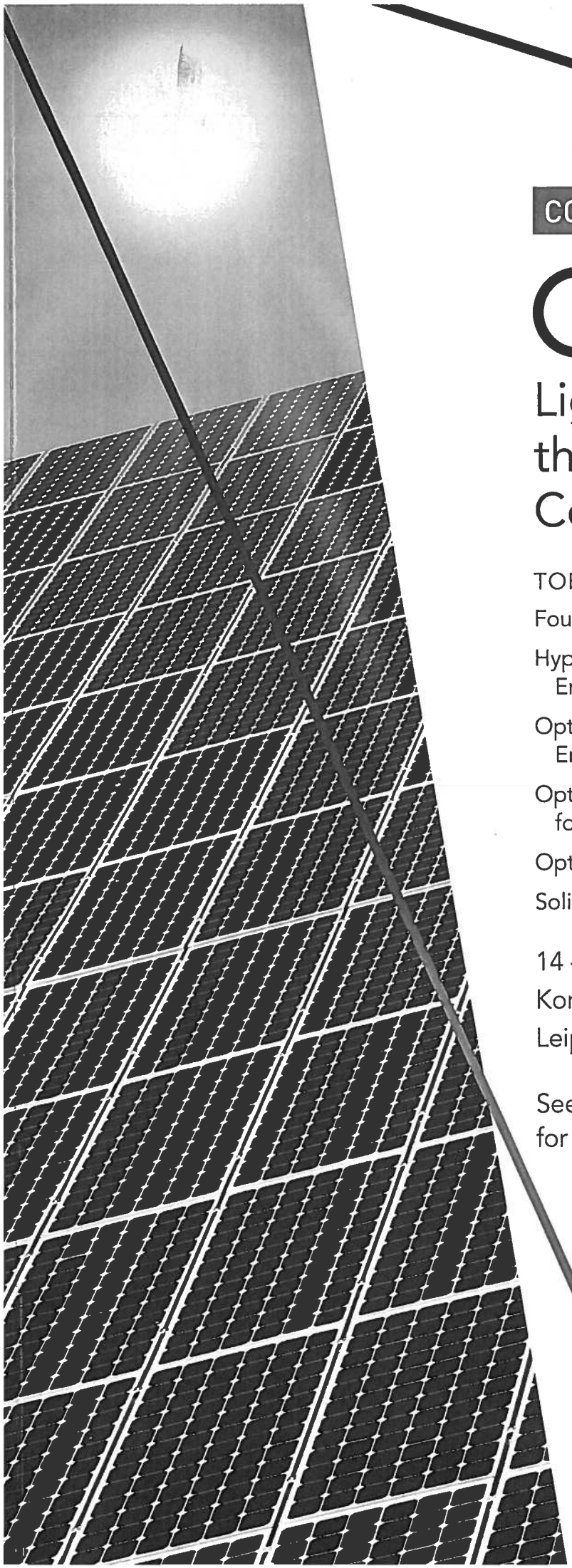
Fourier Transform Spectroscopy (FTS)

10:30–12:30
FTh2C • Interferometer Design (Including Miniaturized Spectrometers)
Presider: Jérôme Genest; Universite Laval, Canada

FTh2C.1 • 10:30 Invited
Broadband Stationary Fourier Transform Spectrometer Integrated on a Silicon Nitride Photonics Platform, Xiaomin Nie[1,2], Eva Ryckeboer[1,2], Gunther Roelkens[1,2], Roel G. F. Baets[1,2]; [1]*INTEC, Ghent Univ.-IMEC, Belgium;* [2]*Ghent Univ., Center for Nano- and Biophotonics (NB-photonics), Belgium.* We experimentally demonstrate a novel type of Fourier transform spectrometer that is integrated on a Si_3N_4 waveguide platform. It features an extremely small size (0.1 mm²) with high resolution (6 nm) and large bandwidth (>100 nm).

FTh2C.2 • 11:00
Major Advances in Developments and Algorithms of the Stationary-wave Integrated Fourier-transform Technology, Fabrice Thomas[1], Bruno Martin[1], Céline Duchemin[1], Renaud Puget[1], Eric Morino[1], Christophe Bonneville[1], Thierry Gonthiez[1], Pierre Benech[2], Etienne LE Coarer[3]; [1]*RESOLUTION Spectra Systems, France;* [2]*IMEP-LAHC, France;* [3]*IPAG, France.* SWIFTS is a breakthrough innovation in Fourier Transform spectrometry, particularly valuable for lasers characterization and structural health monitoring. This integrated technology requires precise calibration and advanced processing algorithms.

FTh2C.3 • 11:15
Withdrawn.



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