

Device Engineering Concepts for Printed Photovoltaics

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The advantages of printed photovoltaics, such as their light weight, mechanical flexibility in addition to the small energy demand, and low-cost equipment requirements for roll-to-roll printing mass production, characterize them as interested candidate sources for future electrical power. The Presentation aims in covering a range of engineering issues needed to bring organic and hybrid perovskite solar cells to commercial viability in terms of efficiency¹, lifetime^{2,3} and cost⁴. A systematic understanding of the relationship between electrode materials, processing and device performance relevant to printed photovoltaics product development targets will be presented.

AKNOWLEDGEMENTS: Funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (H2020-ERC-2014-GoG project number 647311) is gratefully acknowledged.

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[4] Printed Copper Nanoparticle Metal Grids for Cost Effective ITO Free Solution Processed Solar Cells. E Georgiou, S.A. Choulis, F Hermerschmidt, SM Pozov, I Burgués Ceballos, et al, Solar RRL, 2018

Short CV: Stelios Choulis is Professor of Material Science and Engineering at the Cyprus University of Technology (CUT), the Founder and Head of the Molecular Electronics and Photonics Research Unit (<http://www.cut.ac.cy/mep>) at CUT (Cyprus, 2008- Present). He was the device research and development (R&D) group leader of Konarka Technologies (Germany, 2006-2008) under Dr C. J. Brabec and R & D Engineer of the Osram Opto-Semiconductors Inc, Organic Light Emitting Diode team at Silicon Valley (USA, 2004-2006) under Dr Franky So. During his Ph.D. (Supervised by Prof. Jeff Hosea) and first Postdoctoral Research Associate position (Prof Ben Murdin research group) at Advanced Technology Institute (1999-2002, University of Surrey, UK) funded both by the EPSRC, he investigated the optical properties of quantum opto-electronic materials. In 2002 he joined Prof. D.D.C Bradley and Prof. Jenny Nelson at the center of electronic materials and devices (Imperial College London, UK) as Postdoctoral Research Associate funded by British Petrol (BP), and work on organic photovoltaics (2002-2004). Stelios Choulis has led and participated in a number of large-scale research programs (ERC-Consolidator Horizon Grant, SME-EU FP7, RPF-Cyprus, BMBM-Germany, DOE-USA). He has authored and co-authored more than 100 refereed journal publications and over 10 patents families in the area of functional electronic materials, processing and devices.