

## Preface

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This special issue of *Journal of Materials Science* contains papers contributed to the International Conference on Physics, Chemistry and Engineering of Solar Cells (SCELL-2004) held on May 13–15th, 2004 in Badajoz (Spain), at the School of Industrial Engineering of the University of Extremadura (UEX). This conference, a satellite event of the I International Meeting on Applied Physics (APHYS2003), held on October 13–18th 2003 also in Badajoz, is framed in the line of activities that FORMATEX Research Center, the organiser, carries out in the field of interdisciplinary applied research.

SCELL-2004 was intended as a vehicle for the dissemination of research results on materials science and technology related to photovoltaic, photothermal and photoelectrochemical solar energy conversion. It was also aimed at promoting contacts amongst researchers and research groups for the creation of Multinational Thematic and Research Networks, as well as promoting contacts for future collaborative joint projects within some of the EU Operational Programs and Initiatives and other transnational collaborative Programs.

About 120 specialized scientists from 35 countries participated in the event, and 143 papers were presented.

The search of materials with higher performance or efficiency of Photovoltaic systems is one of the most dynamic area in Solar Energy research. The research of new organic or chalcogenide materials, as well as the improvement of silicon-based materials, either crystalline or amorphous, are a constant throughout the subjects of the papers presented to the conference.

Reports on Photovoltaic Research Transfer (remote residences, satellites, highway traffic and information signs, water pumps, communications stations, navigation buoys, street lights and calculators, etc.) were also of the highest interest during SCELL-2004 sessions, specially in the view of its high interest for developing countries, where the slow arrival of grid electricity would make PV technology and promising alternative (as overall costs are expected to decrease). The same applies to rural or depressed areas of developed countries. Researches on those technologies not in production and not expected to enter production soon because additional long-term research, development, and innovation are needed, were also welcome at SCELL-2004.

The activities of the conference included three plenary lectures carried out by Dr. Jenny Nelson (Organic photovoltaics group, Blackett Laboratory, Imperial College, UK), which talked about “Charge Transport and Recombination in Molecular Solar Cells”, Dr. Rolf Brendel, Head of the Division for Thermosensorics and Photovoltaics at the Bavarian Center for Applied Energy Research (ZAE Bayern, Germany), who delivered a lecture on “Thin-film Crystalline Si Solar Cells from Layer Transfer using the Porous Si (PSI) Process” and Prof. Gehan Amaratunga (Head of Electronics, Power and Energy Conversion, Electrical Engineering Division, Engineering Dept. Cambridge University UK), who spoke about “Polymer-nanotube Solar Cells with Dye Sensitisation”.

In addition, RAI Educationale, the Italian Public Television System for Educational Sectors recorded some events of the conference as a part of a documentary dealing with Photovoltaic Energy and Systems. This documentary will include interviews with some participants, exhibitors and organizers, and plenary lectures pieces.

We would like to thank the members of the International Scientific Advisory Committee, as well as the reviewers, for their advice which have certainly helped to improve the quality, accuracy and relevance of this conference Program and publications. We would also thank Elsevier Science, Springer and Semilab Laboratories in Hungary, for sponsoring the conference, as well as the Director and vice-director of the School of Industrial Engineering of the UEX, Drs. F. Gragera Peña and P. Suárez, for their collaboration in many practical aspects of the conference development in the School.

The Guest Editor believes this issue will be a valuable resource not only for the participants of SCELL-2004 but also for the whole research community in the field of photovoltaic materials and devices.

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