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Advances in Tandem Architectures toward High-Efficiency Solar Cells

Guest Editors:

Dr. Xiaojie Xu

Lawrence Livermore National
Laboratory, Livermore, CA 94550,
USA

Dr. Sudhanshu Shukla

Interuniversity Microelectronics
Centre (IMEC), 3001 Leuven,
Flemish Region, Belgium

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Message from the Guest Editors

Tapping the vast energy available from the sun in the form of electricity and chemical fuels has the tremendous potential to address the global energy supply and climate change. Over the years, power conversion efficiencies have improved drastically due to both material innovation and advanced processing techniques. Of those, tandem architectures have emerged which are extremely promising when it comes to pushing the frontiers beyond single junction efficiency limits due to their efficient utilization of the solar energy spectrum and innovation in device design.

Recently, with the emergence of perovskite materials and developments in thin films (CIGS, CZTS, Sb_2Se_3), solar cells have drastically changed the landscape with more options available to stack different material combinations in 4-T and 2-T configurations. Additionally, 3-T design is also attracting attention due to its unique operational functionality, which relaxes the current matching criterion. And contact layers are becoming increasingly important for monolithic cell design.

So, this Special Issue calls for high-quality research progress on tandem solar cell materials, design, contact layers, and their utilization.



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Special Issue



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Editor-in-Chief

Prof. Dr. Enrico Sciubba

Department of Mechanical and
Aerospace Engineering,
University of Roma Sapienza, Via
Eudossiana 18, 00184 Roma, Italy

Message from the Editor-in-Chief

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Energies Editorial Office
MDPI, St. Alban-Anlage 66
4052 Basel, Switzerland

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