



*The Abdus Salam*  
**International Centre for Theoretical Physics**



**WORKSHOP ON NEW MATERIALS FOR RENEWABLE ENERGY**  
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**NANOTECHNOLOGY FOR PHOTOVOLTAICS**

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Abstract:

The state of the art of photovoltaics will be reviewed, identifying the fundamental limitations of current approaches and how research on “third generation” technologies is trying to overcome such limitations. All new approaches are based on engineering devices and materials at the nanoscale, as this is the scale where the key mechanisms that govern the photovoltaic effect operate: nanotechnology and biotechnology are the tools of choice for such endeavor. Among such approaches, I will emphasize the contribution of our group at the University of Trieste - focused on a novel class of photovoltaic nanostructured materials obtained from low-cost colloidal chemistry.