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WORKSHOP ON NEW MATERIALS FOR RENEWABLE ENERGY
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ORGANIC-INORGANIC NANOSTRUCTURES FOR SOLAR ENERGY CONVERSION

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ABSTRACT I:

Organic photovoltaic diodes (OPVs) and organic solar cells are reviewed. The different energy and electron transfer mechanisms of solar energy harvesting as well as conversion are discussed. Pure organic nanostructures and organic/inorganic hybrid nanostructures are comparatively studied for photovoltaic devices. This talk gives an overview of materials' aspect, charge-carrier-transport, and device physics of such diodes.

Furthermore, the use of solar photoenergy to reduce CO_2 into hydrocarbon based synthetic fuels is introduced. Such artificial photosynthesis type fuel production can simultaneously solve the energy storage and energy transport problems of photovoltaic electricity.