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Title: First Large Area Dye Solar Cells

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Abstract:

This contribution presents the first large area nanocrystalline titanium oxide based dye solar modules ("Graetzel cells") having a size up to 45 x 45 cm, manufactured with industrial methods and materials opening a way to a real product for selected markets. The new dye solar modules are made of 33 monolithic interconnected cells giving up to 21 V and 400 mA at a light intensity of 1000 W/m². The electrical performances measured in artificial and natural sun, and the outdoors stability are discussed, as well as the economic data showing an excellent cost of production of ca. 2 US \$ per W_p for a one MW_p production volume. The required steps towards end-user products and the challenges to overcome are also addressed.

Key-words: large area module, dye solar cell, nanocrystalline TiO₂, efficiency, stability.