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**Proposal for the submission of a paper: "Dye Sensitized Solar Cells - An 'Innovation
Community' based Technology Development Process"**

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Abstract

Worldwide the dye-sensitized solar cell has been the subject of research for over 15 years. In contrast to conventional solar cells, the underlying principle is the conversion of light into electrical energy by means of an organic dye. Dye-sensitized solar cells are produced using simple screen-printing and are a promising technological development with regards to both production simplicity and to application possibilities and sustainability aspects. They open up new design possibilities (colour, semi-transparency, patterns) and, because of their simple method of production, possess both a high potential for sparing resources and lowering costs as well as a high suitability for international dissemination. The application possibilities for photovoltaic, their economical feasibility and the energetic amortization period of the solar cell can thereby be improved. Through offering a choice of colours and a semi-transparent surface, the dye-sensitized solar cell opens up new possibilities for design in the arena of building-integrated photovoltaics and, furthermore, combines the classical facade functions (weather and noise protection) with energy production. The same applies for structures such as bridges, stadiums and external stairs.

The aim of the research project ColorSol is to develop the dye-sensitized solar cell to the stage of application and to identify appropriate application fields. Besides the technical challenges of that development process, the establishment of a capable innovation network between various companies, organisations and future customers along the emerging value chain is a crucial factor for the success of the development process. In this case the concept of innovation communities helps to identify and to understand existing networks in the field of dye-sensitized solar cells. An "innovation community" is understood as a group of key promoters, mostly coming from different companies and organisations that together promote and drive forward a specific innovation idea or project.

The knowledge obtained by the analysis of the existing relationships and network structures in the field of dye-sensitized solar cells is used in the project ColorSol to build up and strengthen the own network by integrating key actors from the business sector and lead users especially architects that work in building integrated photovoltaics.

The paper will present results from the network analysis and the endeavours to build an own innovation community starting from the partners from the project ColorSol.