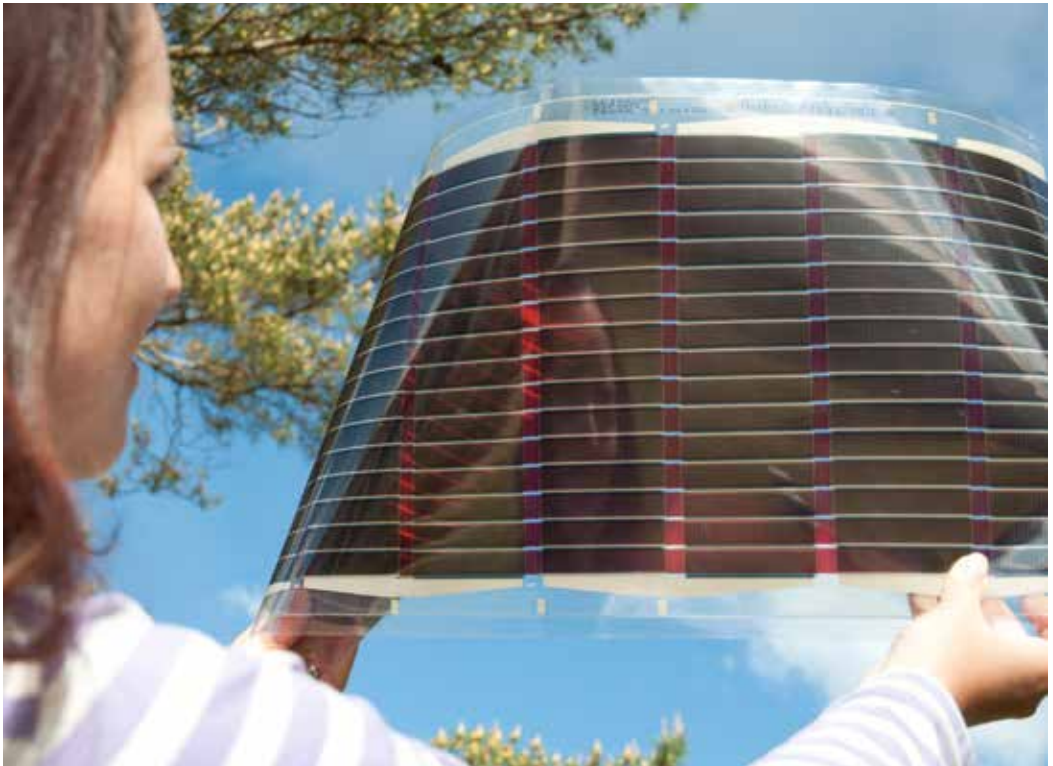


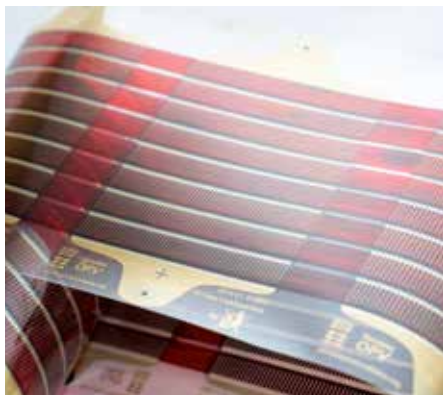
POLYMER SOLAR CELLS

– MASS-PRODUCED SOLAR POWER



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Solar energy will be one of the major energy sources in a future sustainable, fossil-free society because the Sun is a free and abundant source of energy. At the Department of Energy Conversion and Storage, we are doing research on solar cells made of polymers. Compared to traditional silicon solar cells, the manufacture of such cells requires fewer resources and much less energy. Furthermore, the production of polymer solar cells uses upscalable and cheap roll-to-roll processes known from the printing industry.

A polymer solar cell consists of a series of thin functional layers deposited on a polymer foil. By employing inks containing the active

materials, one can use standard printing technology to deposit a layer very fast on an entire roll. Such roll-to-roll processes allow upscaling of the production to very large scale at little capital cost.

For polymer solar cells to become commercially competitive, a number of improvements are needed, in particular in relation to their conversion efficiency and their durability. This is the focus of our research and development which span all the way from basic research, through implementation of advanced device structures such as tandem solar cells to the development of industrial processes. We design and synthesize new materials, we characterize them in detail, we develop the methods to implement the materials in roll-to-roll manufacturing, and finally we test complete solar cells and panels.

Due to the high adaptability of our technology, applications range from powering small electronic devices to large-scale grid-connected power production. Our group collaborates with several companies within printed electronics, micro-power, and roll-to-roll machinery. We are always interested in discussing business opportunities with companies interested in using and commercializing polymer solar cells.

ABOUT THE DEPARTEMENT

We focus on functional materials and their applications for sustainable energy technologies

FURTHER INFORMATION

www.energy.dtu.dk

CONTACT

Department of Energy Conversion and Storage
Technical University of Denmark, Risø Campus,
Frederiksborgvej 399, DK-4000 Roskilde,
Denmark

info@energy.dtu.dk, +45 4677 5800