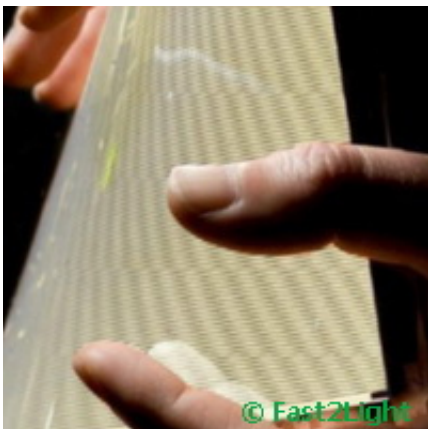


Lighting the way to the future

September 3 2013



Credit: East2Light

The highly inefficient incandescent light bulb is now a thing of the past, banned from European supermarket shelves in favour of more efficient lighting. The ban is part of the EU's strategy to reduce overall energy consumption and become more environmentally friendly.

Now, other types of lighting, such as the halogen lamp, are also coming under scrutiny. Much of today's research into alternatives has focused on organic electroluminescence, a [lighting solution](#) that promises to surpass even [compact fluorescent lamps](#) (CFLs) in efficiency. Of particular interest are organic light-emitting diodes (OLEDs), in which a film of [organic compounds](#) emits light in response to an electric current.

The EU project FAST2LIGHT ('High-throughput, large area and cost-

effective OLED production technologies') aimed at describing how a new technological platform for the 'roll-to-roll' (R2R) manufacturing of OLED lighting foils could work.

OLEDs are cold light sources and this, along with their superior [energy efficiency](#), makes them highly suitable as a sustainable lighting solution.

Cost is an important factor in any market. Here, cost-efficiency could be achieved if OLEDs could be manufactured on foil, using high-speed R2R processing.

The scope of the FAST2LIGHT project, led by TNO Built Environment and Geosciences, encompassed all of the layers making up an OLED lighting foil. Project partners started by choosing a substrate and then introduced high-throughput deposition and patterning methods for all of the materials necessary to fabricate the final lighting foil.

Once this was done, it became clear which device architectures and designs were best suited to integrating these new deposition and patterning methods. Finally, a set of design rules was determined, together with a final process flow, resulting in the construction of a production pilot line.

One of the most challenging hurdles was the development of a suitable thin film barrier. Researchers say OLEDs hold the promise of flexible, thin, lightweight and power-efficient light sources for the future.

FAST2LIGHT, which received EUR 10 million in EU funding, has demonstrated that OLEDs can be produced in an efficient and cost-effective way. The research opens the door to a range of new types of lighting that could reduce energy bills and help protect the environment.

The researchers completed their work in 2011.

More information: FAST2LIGHT www.fast2light.org/

Provided by CORDIS

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