



Hybrid OLED creates innovative and functional luminous surfaces



Up to now, OLEDs have been used exclusively as a novel lighting technology for use in luminaires and lamps. However, flexible [organic](#) technology can offer much more: as an active lighting surface, it can be combined with a wide variety of materials, not just to modify but to revolutionize the functionality and design of countless existing products. To exemplify this, the [Fraunhofer Institute](#) for Organic Electronics, Electron Beam and Plasma Technology FEP together with the company EMDE development of light GmbH are presenting hybrid flexible organic light-emitting diode (OLEDs) integrated into textile designs within the EU-funded project PI-SCALE for the first time as examples of some of the many possible applications. For more information see the IDTechEx report on [OLED Display Forecasts and Technologies 2019-2029](#).

The [Fraunhofer FEP](#), a provider of research and development services in the field of organic electronics, has long been involved in the development of technologies and processes for organic electronics and component integration. The team at the design company of EMDE development of light GmbH also has many years of experience with the new organic light-emitting diode light (OLED), including development of the world's first OLED luminaire series. OLEDs cannot only emit colored and wide area light, but they themselves are also extremely low-profile and flexible, allowing them to be integrated into many types and shapes of surfaces. They can be even designed to be transparent and dimmable. To demonstrate the sheer endless potential for employing OLEDs, the designers at EMDE are now integrating flexible OLEDs for the first time into a motorcycle jacket. Used as a material for clothing, OLEDs not only can trigger completely new aesthetic trends, they can also provide active illumination instead of just limited reflectance. This enhanced visibility from all angles means the wearer can be seen more clearly, increasing rider safety.


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This is made possible by fabricating the OLEDs on flexible substrates such as plastic films and connecting them to conductive threading for their supply of electrical power. Together with the [HOLST Center](#) in Eindhoven, the Fraunhofer FEP in Dresden, Germany, has now for the first time implemented an extended approach of the technology for the OLED on the joint pilot line service LYTEUS within the EU-funded project PI-SCALE - a hybrid OLED.

Claudia Keibler-Willner, head of department at the Fraunhofer FEP, explains: *"We have taken a major step forward in economical fabrication*

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Clear advantages for designers result - infinitely long materials with practically unrestricted dimensions and configurations can be created. The only limitation is the 30 cm roll width of the substrate material. Thomas Emde of EMDE development of light GmbH looks ahead: "We are very pleased to present a first design demonstrator using the hybrid OLEDs from the EU project PI-SCALE at LOPEC 2019. After examining the first samples, we decided on a prototype that would combine imagination with a practical application. We exhibit a few meters of the hybrid OLED in its raw form from the roll as a "pure" material component. Its transformation into a future product is illustrated through the example of our eyecatcher motorcycle jacket with luminous, integrated, flexible OLEDs. This will suggest the potential of OLEDs as an innovative surface material for interior design and product applications, fashion and textile designs, and architectural and signage uses."

Source and top image: Fraunhofer FEP

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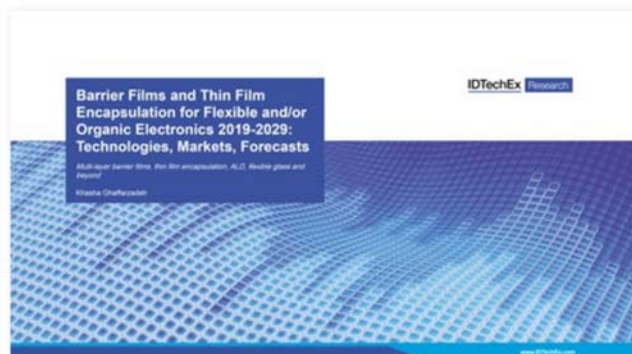
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