

Organic PV: Huge Potential, But Industrial Line-up Needed

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Posted by Chris Warner



Little by little, organic PV seems to be taking off. Evidence are the many startups popping up worldwide: SolarPress, Eight19, Heliatek etc. These startup companies are often backed up by large (chemical) companies. So clearly there is a belief that this PV technology can be a success with its low cost (<0.5 euro/Wp), low-weight, semi-transparency and positive sustainability profile.

Still, there is not yet a killer application on the market. Yes, there are the solar-powered handbags, umbrellas and clothes, but these are rather 'gadgets' than real game changing applications. But will these first steps evolve into a full commercialization within a few years?

I believe it can. But to achieve this, there should be more involvement of the different parties in the value chain. Today especially, the material (chemical) companies are involved in the OPV market. This has led to a strong progress on the efficiency side with potential to go beyond 10 percent by 2013, certainly when employing multi-junction cell concepts. But to achieve the same pace of progress on the side of stability and large-area processing technologies, other parties will have to enter the field: equipment suppliers, device manufacturers and integrators.

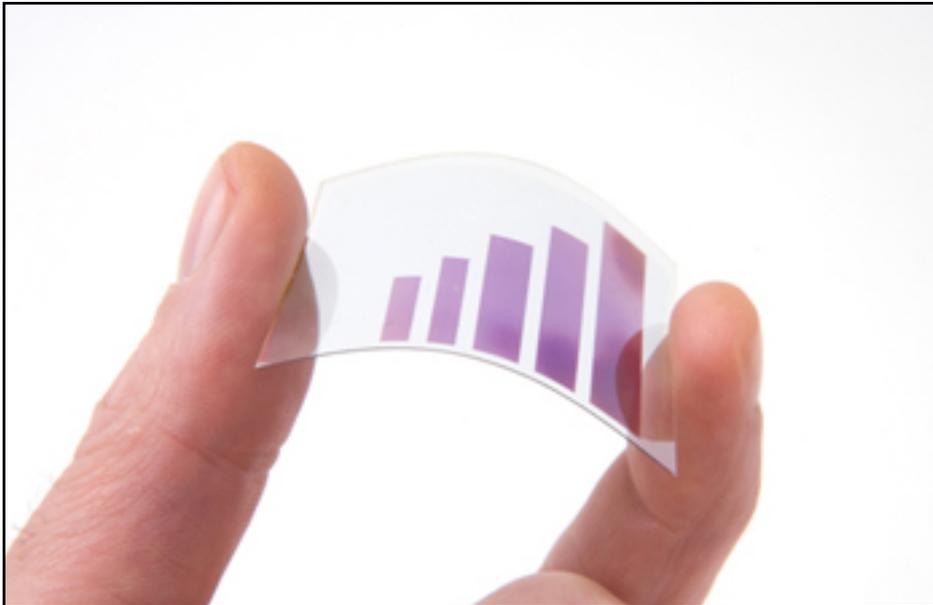
If such a strong involvement can be set up, for example within the context of joint research programs in research institutes such as imec, the OPV market may get really going. Issues ensuring stable cost-efficient real-life applications will be solved, and the right application areas will be selected. Namely the ones in which OPV can discriminate itself from other PV technologies.

Personally, I believe that building integrated OPV is such an application area. Organic modules can be integrated in windows, curtains and walls. Important advantages over silicon PV are the relative insensitivity towards the angle of

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incidence and the esthetic design capabilities enabled by the semi-transparency properties. Another important application area for me is the use of OPV to power houses with weight restricted roofs or houses in developing countries. Just imagine people carrying around a roll of OPV foil and rolling it out on the roof of their house. It is cheaper and easier to transport and install than any other PV technology, making a huge difference for remote areas.



But still, there is a long way to go to make progress in the context of stability and manufacturability. But with a joint effort of industrial players and research centers, this road towards full commercialization and killer applications can be traveled within a few years.

Photo: Organic solar cells on flexible foil.

Philip Pieters received a masters degree and Ph. D. in electrical engineering from the Katholieke Universiteit Leuven in Leuven, Belgium. He joined imec in 1994 doing pioneering R&D work for innovative heterogeneous integration and RF-SIP technologies. Today, he is business development director Energy, creating the bridge between imec's hightech research on PV technologies and the market needs.

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