Extremely Large Area Nano Imprinting on Air

Publieke samenvatting / Public summary

Aanleiding

The benefit of anti-reflection textures has been proven in the granted FP7 Fast Track and the Polaris TKI subsidy projects. Within these projects a proto-tool and imprint process has been developed by Morphotonics. But in daily practice it is challenging to replicate the textures, using this Portis proto-tool, on warped and uneven surfaces of tempered glass substrates or fully integrated solar panels. To improve the imprint quality, we need to use a new conformal, precise imprint technology. TU Delft, department of precision and microsystems engineering has in the past years developed a new technology for handling of thin substrates by means of a contactless, air bearing actuator concept, with high precision positioning. This proven concept will be adjusted and scaled-up to be used in the existing Morphotonics imprint equipment.

Doelstelling

The ELANIA proposal (Extremely Large Area Nano Imprinting on Air) focuses on the development of imprinting equipment for anti-reflection (AR) textures on large solar panels, to increase its efficiency and thus reduce the solar energy costs and subsidy costs within the Netherlands.

Korte omschrijving

Within this project specific topics will be studied. The air-bearing technology of TU Delft has been demonstrated in previous projects up to TRL level 5. In the ELANIA project this technology will need to handle larger surface areas to transport the large flex stamp and substrate of the imprint process. The manufacturability at this larger scale is a

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Algemene informatie / General information

Penvoerder / Secretariat
Morphotonics B.V.

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development goal in this project. Furthermore, local pressure control is added to support the imprint functionality, using well established air-bearing understanding and design principles. These steps involve the development of new mathematical models, lab-scale test beds and a full-scale demonstrator. At conferences, within papers and in a PhD thesis the work will be disseminated.

Resultaat

This project will enable the imprinting of anti-reflection textures on solar panels. The end result of the project will be a full-scale demonstrator at TRL level 6-7, ready to convince customers.

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.
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