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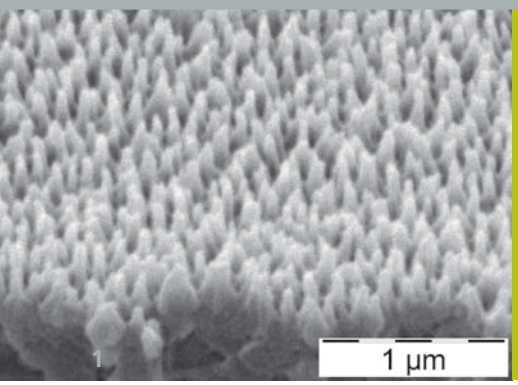

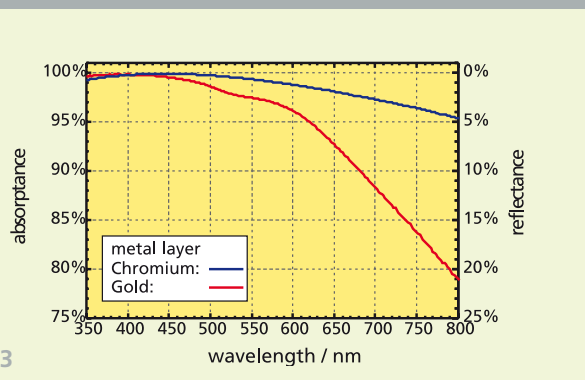

1 *SEM image of a plasma-ion etched subwavelength antireflective structure.*
2 *Decorative artwork based on AR-plas® and the subsequent coating with a gold layer.*
3 *Absorptance and reflectance of metal layer.*

HIGH-ABSORBING PLASTIC SURFACES

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Motivation

Black surfaces are required for solar absorbers, light traps for optical devices as well as for decorative purposes.

Offer

The process can be applied to manifold polymers to produce a black backside absorber.

Our solution

The subwavelength antireflective structure is generated by the AR-plas® etching process on the backside of transparent polymeric samples. The nanostructure is coated subsequently by a metal layer. Observed directly from the front side a broadband absorption close to 100% appears due to the structured polymer-metal-interface. On the backside a higher reflectance occurs and an enhanced electrical conductivity can be achieved. The front surface can provide a high contrast ratio in reflection if textured with masks.