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Nanostructure

Nanostructured butterfly wing surfaces COLOUR & FUNCTION Multi Indicator via Colour change

Wettability
Super-duper hydrophobic

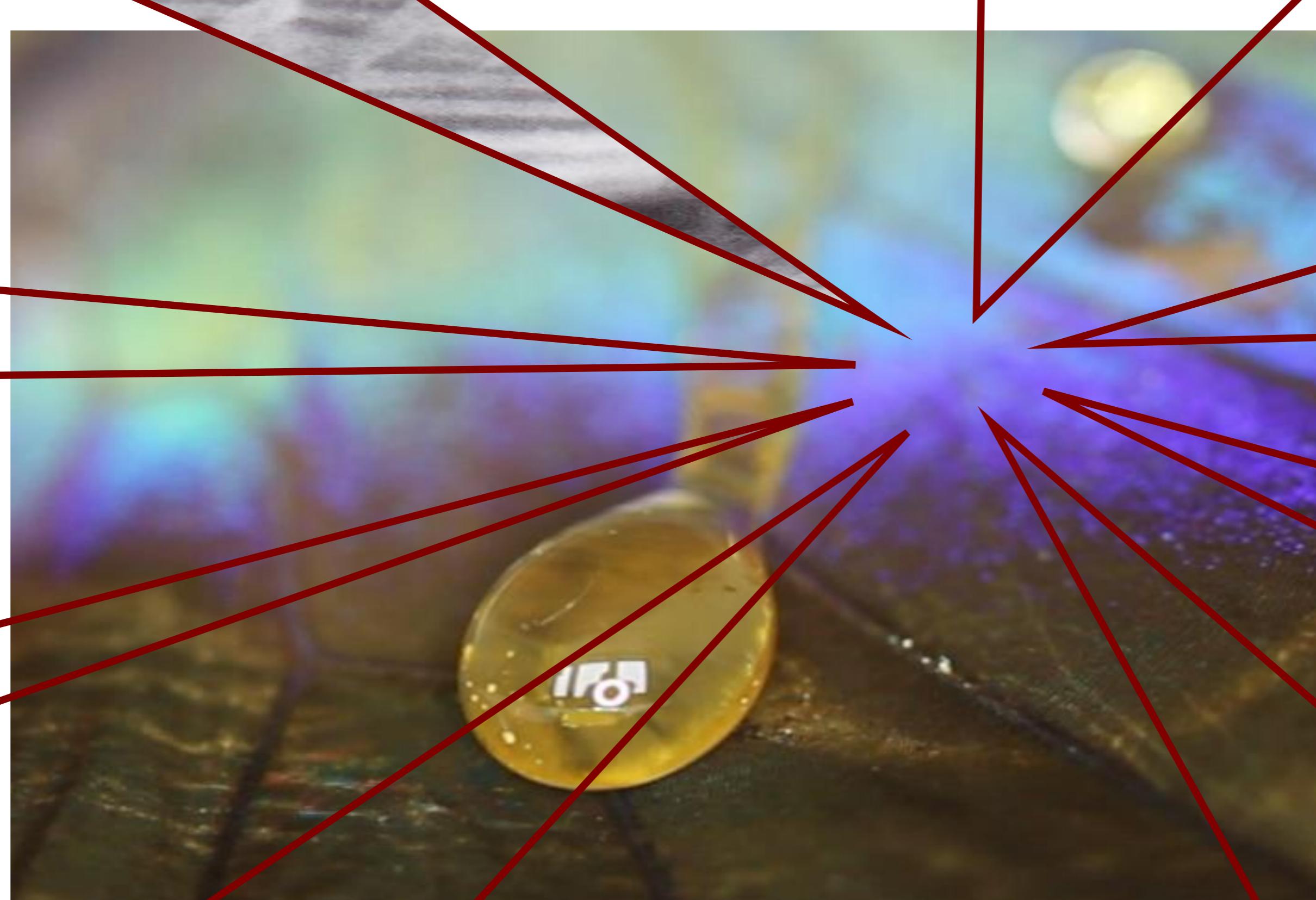
Lightweight construction

Technical forced colour change
Abrasion
Chemical impact

Highly reflective
UV - Colours_{visible} - IR

Minimal Friction
Low air resistance

Natural colour change
Viewing angle
Material density



Images: Film and photograph of a honey drop dripping of a *Caligo eurolichus* hindwing section.



Image: *Caligo eurolichus* hindwing with a drop of honey dripping off the surface.

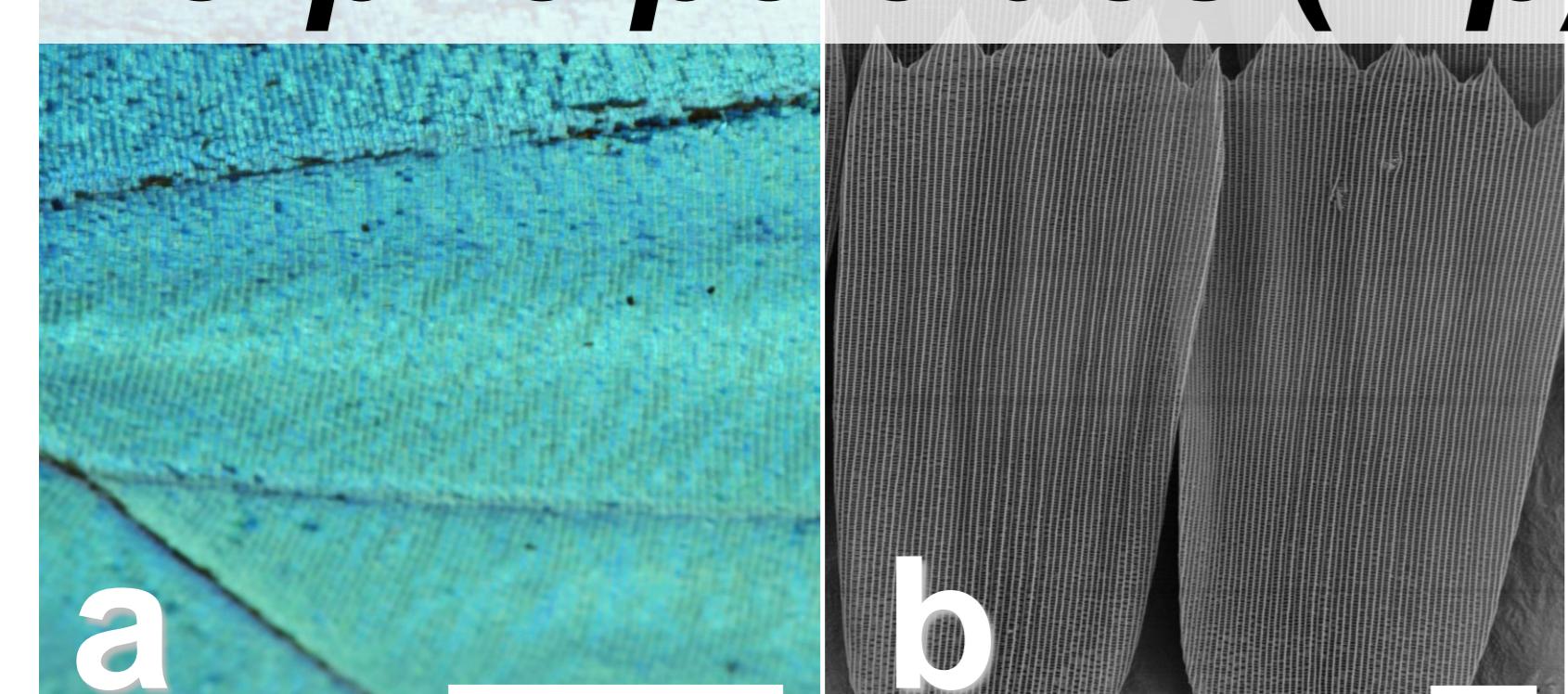
Study the function of organic surfaces by their imprints

Why imprints?

- isolation of the nanostructured surface from the biotemplate
- e.g. materials with different refractive index, friction studies, reflection;
- to obtain new biological insights and new functional information of their surfaces

1 hour replication technique to obtain a nanostructured butterfly scale imprint
Zobl et al 2016, Bioinspir. Biomim. 11, 016006, <http://tinyurl.com/z53pba5>

***Morpho peleides (Mp)* wing piece**



easily replicated

Imprint Mp wing piece

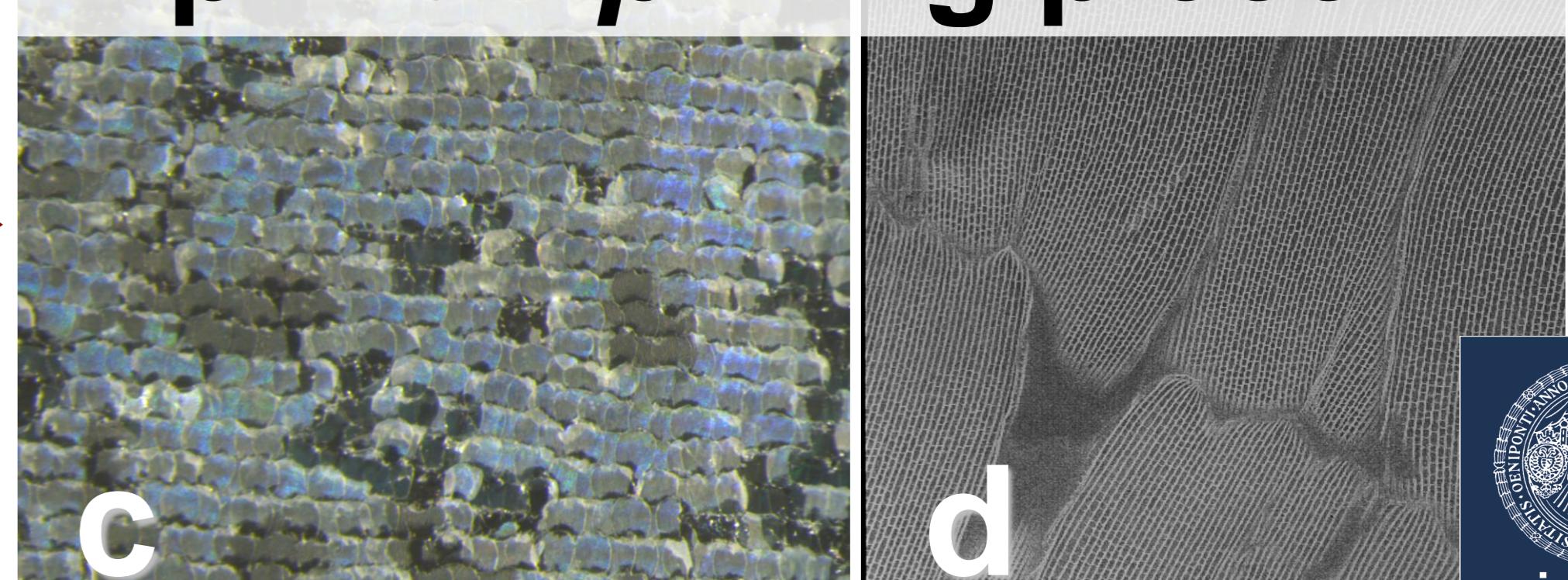


Image (a) - (d): (a) Photograph, (b) Pfaller C., 2015, Medical University Innsbruck, (b) and (d) SEM images of two *Morpho peleides* scale imprints, (c) Light microscopic image of a *Morpho peleides* wing reflectance, Scale bar (a) 0.5 cm (b), (c) 100 µm (d) 20 µm.