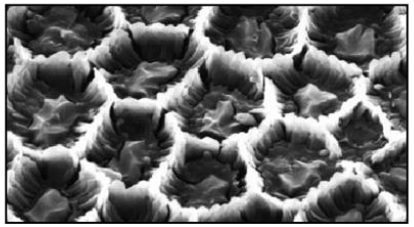
ALPHANOV's VALUE PROPOSITON

Surface Texturing and functionalization with laser technologies

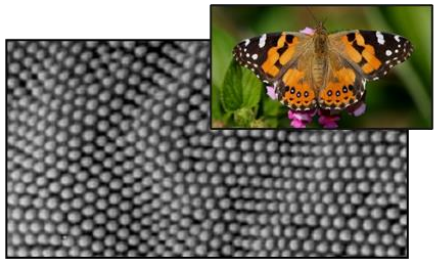
Key Industries: Aeronautics, Energy and Construction industries

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 862100 (NewSkin). The output reflects the views only of the author(s), and the European Union cannot be held responsible for any use which may be made of the information contained therein.

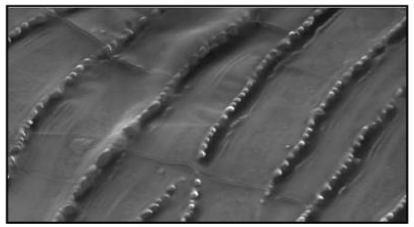
Nano and micro textures in Nature



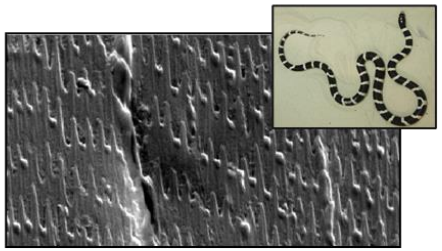
Kongo-Rose Bug (*Pachnoda marginata*)



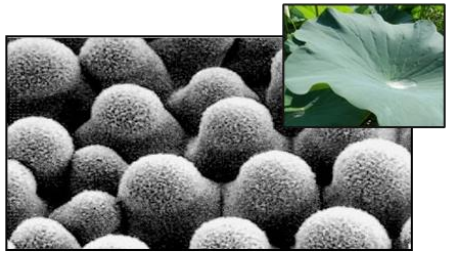
Butterfly(*Vanessa kershawi*)



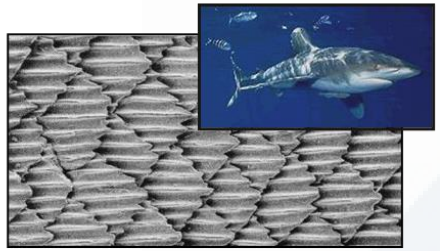
Sandfish (*Scincus scincus*)



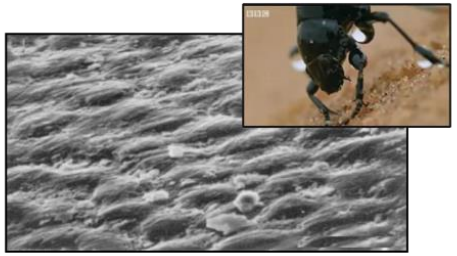
Amurnatter (*Elaphe schrencki schrencki*)



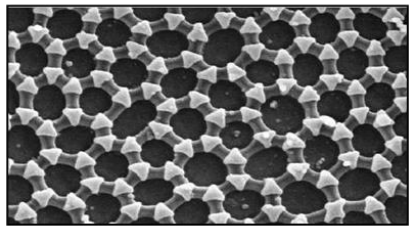
Taro Leaf (Colocasia esculenta)



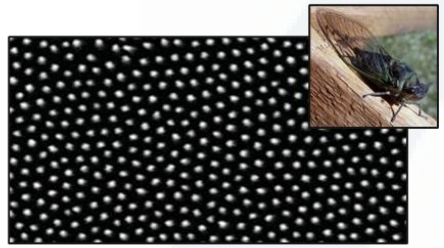
White Shark (*Carcharhinus*)



Dark Bug of Namib (*Stenocara sp.*)



Springtail (*Isotoma saltans*)



Cicada Wing (*Psaltoda claripennis*)

Surface Functions Enabled

Super-hydrophobicity
Super-hydrophilicity
Antibacterial
Anti Reflection
Light Dispersive
Highly Absorbent

Laser based bio-inspired surface functionalisation

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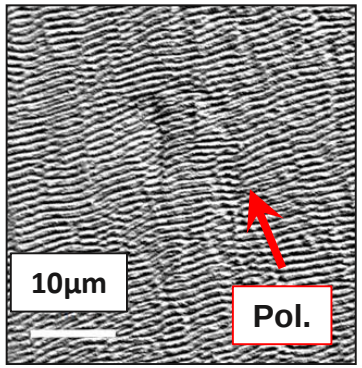
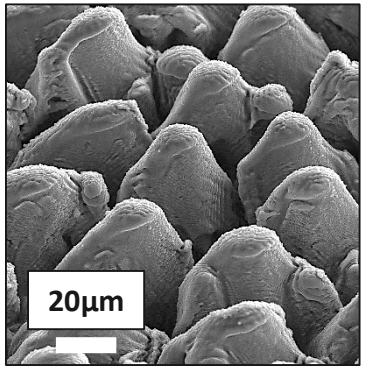
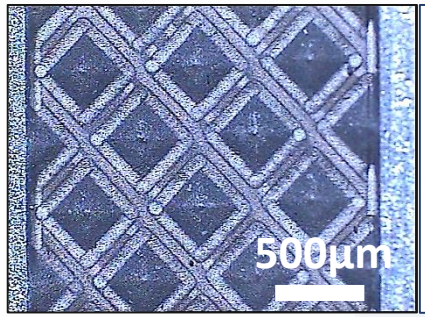
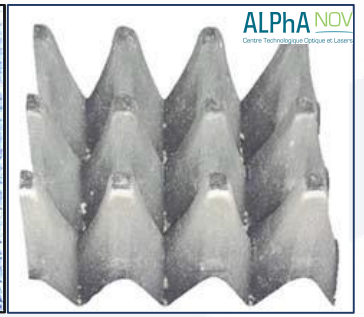
Ripples/LIPSS



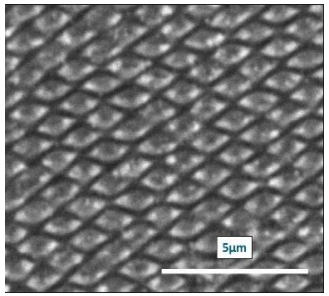
Spikes

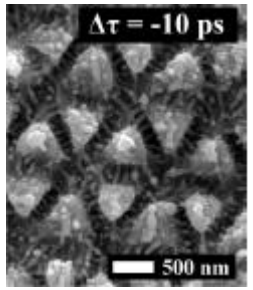




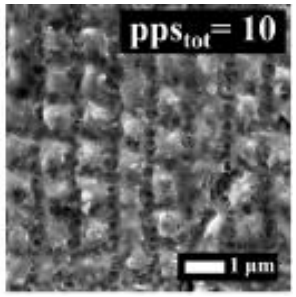


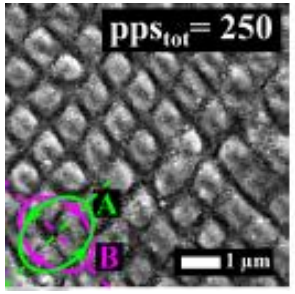
Direct Engraving by fs laser

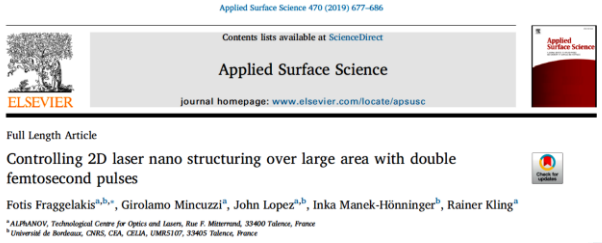




Self re-organisation by fs laser







Applied Surface Science 470 (2019) 677–686

Contents lists available at ScienceDirect

Applied Surface Science

journal homepage: www.elsevier.com/locate/apsusc

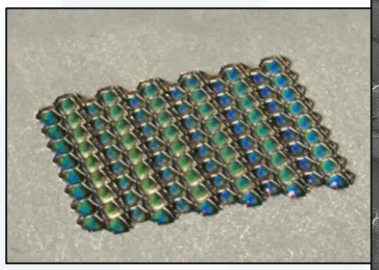
Full Length Article

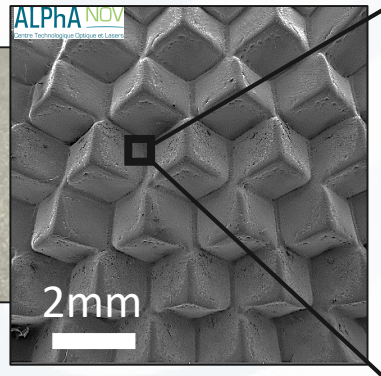
Controlling 2D laser nano structuring over large area with double femtosecond pulses

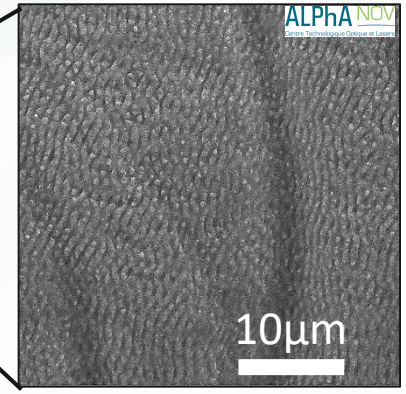
Fotis Fraggelakis[a,b,*], Girolamo Mincuzzi[a], John Lopez[a,b], Inka Manek-Hönninger[b], Rainer Kling[a]

[a] ALPhANOV, Technological Centre for Optics and Lasers, Rue F. Mitterrand, 33400 Talence, France
[b] Université de Bordeaux, CNRS, CEA, CELIA, UMR5107, 33405 Talence, France

Remodelling by CW laser







VP1 - Anti-icing Surfaces

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Airplanes Parts

Energy Generation and distribution

Bridges

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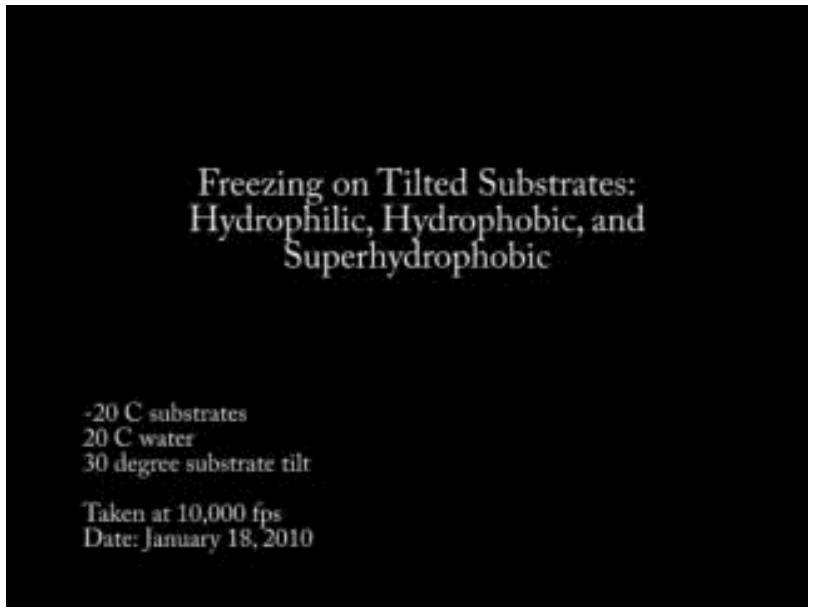
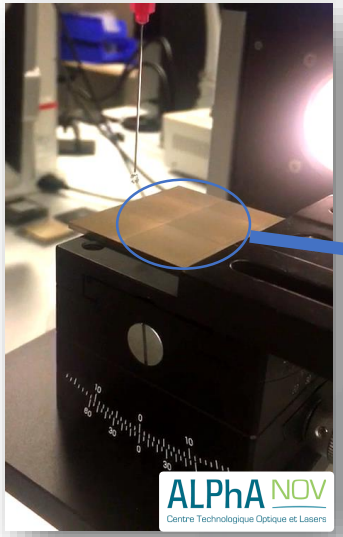
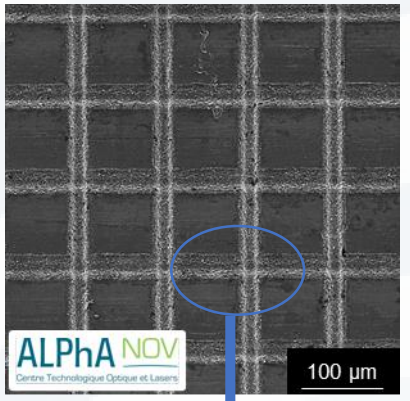
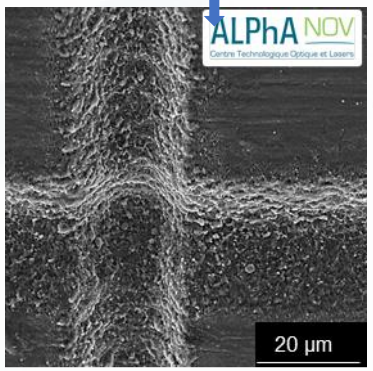
Centre Technologique Optique et Lasers

Superhydrophobic surfaces → Anti-Icing behaviour









VP2 - Antifouling Surfaces

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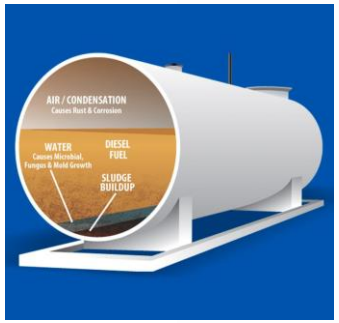
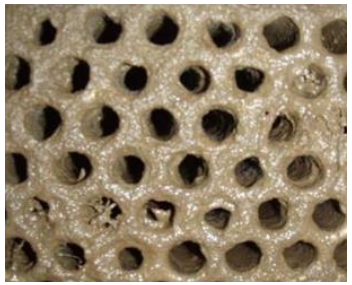
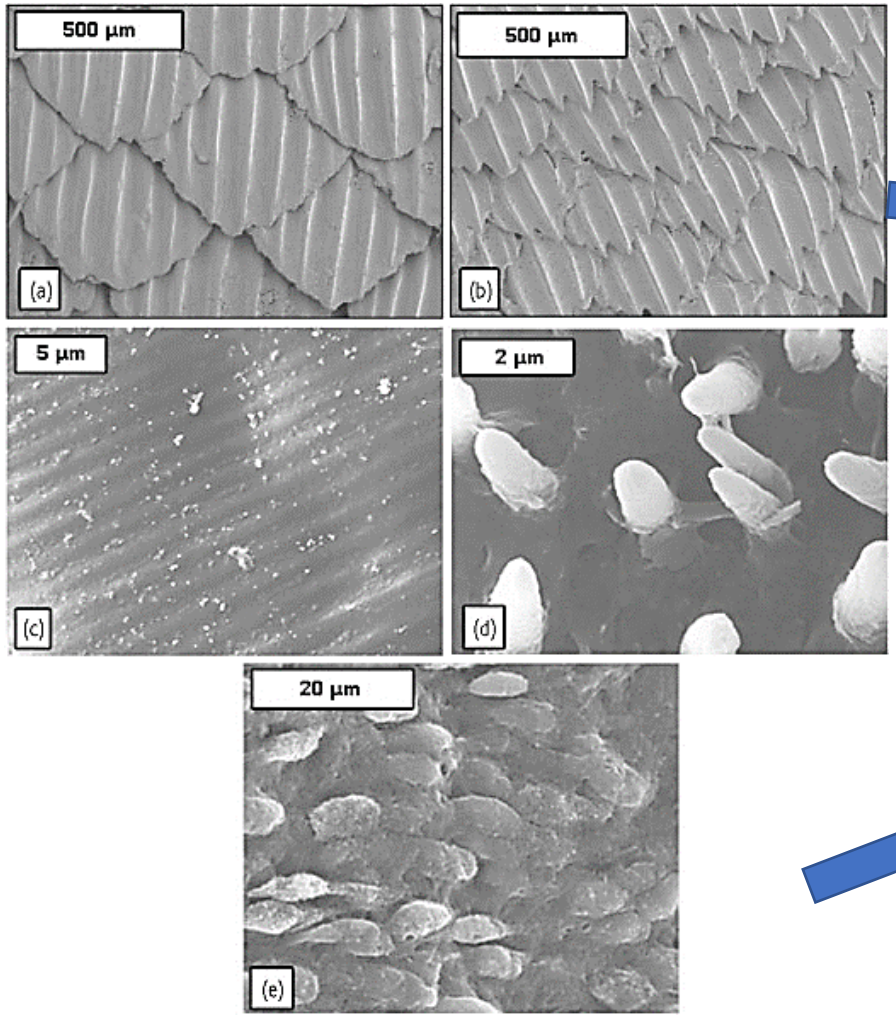


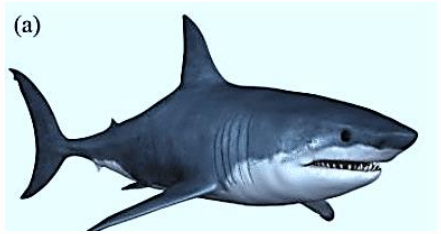
Food and Fuel Tanks



Large Pipes

Pumps and Turbines





Shark Skin

Crab Shell

materialstoday APRIL 2010 | VOLUME 13 | NUMBER 4

Non-toxic antifouling strategies **REVIEW**

Chelsea M. Magin[1], Scott P. Cooper[2] & Anthony B. Brennan[1,2,*]
[1] J. Crayton Pruitt Family Department of Biomedical Engineering, University of Florida, Gainesville Florida, USA
[2] Department of Materials Science & Engineering, University of Florida, Gainesville Florida, USA
* E-mail: abrennan@mse.ufl.edu

VP- 3 Antibacterial Surfaces

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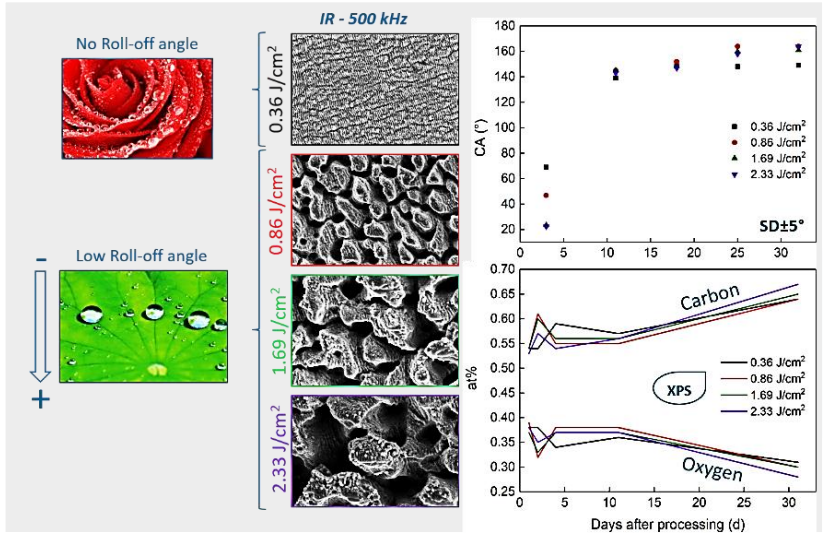
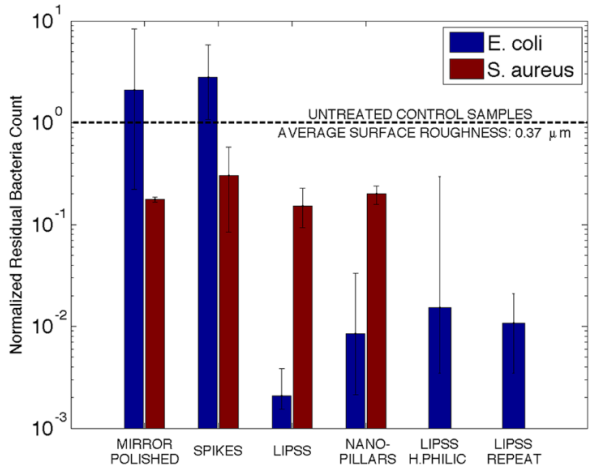
TresClean

- EU Grant: H2020
- Project Coordinator: University of Parma
- Budget: 3.36M€





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ECOR RESEARCH

RAYLASE
focus on laser

Universität Stuttgart

B/S/H/
BSH Electrodomésticos España, S.A.

SCIENTIFIC REPORTS

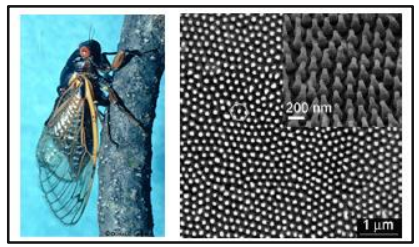
OPEN

Towards Laser-Textured Antibacterial Surfaces

Adrian H. A. Lutey[1], Laura Gemini[2], Luca Romoli[1], Gianmarco Lazzini[1], Francesco Fuso[3], Marc Faucon[2] & Rainer Kling[2]

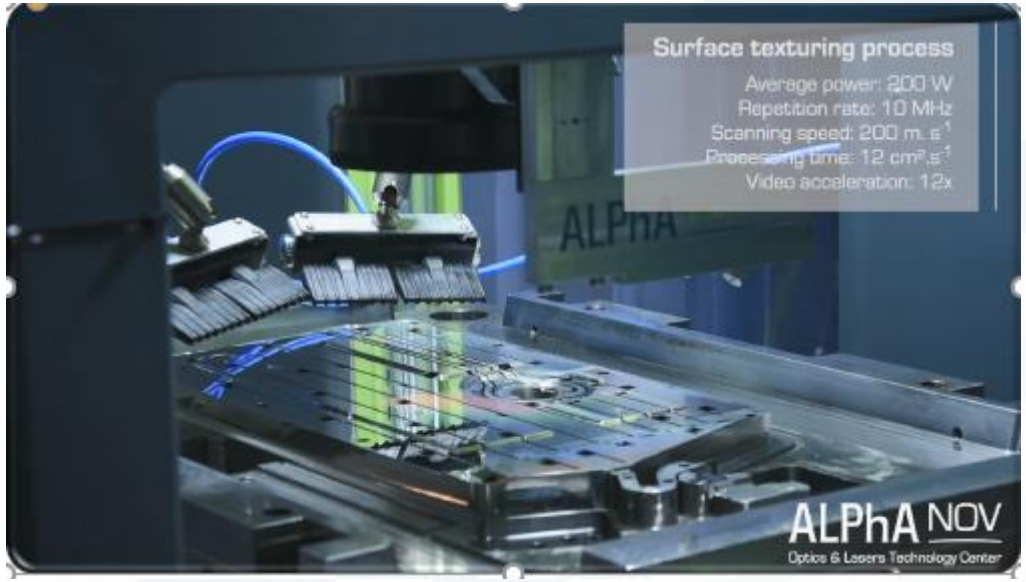
Cigala wings

200 nm nanostructures for hydrophobic and antibacterial functionalisation



Antibacterial Texturing for washing machine water reservoir

injection moulding



Texturing of Cu Charges Collectors

ALPhA NOV
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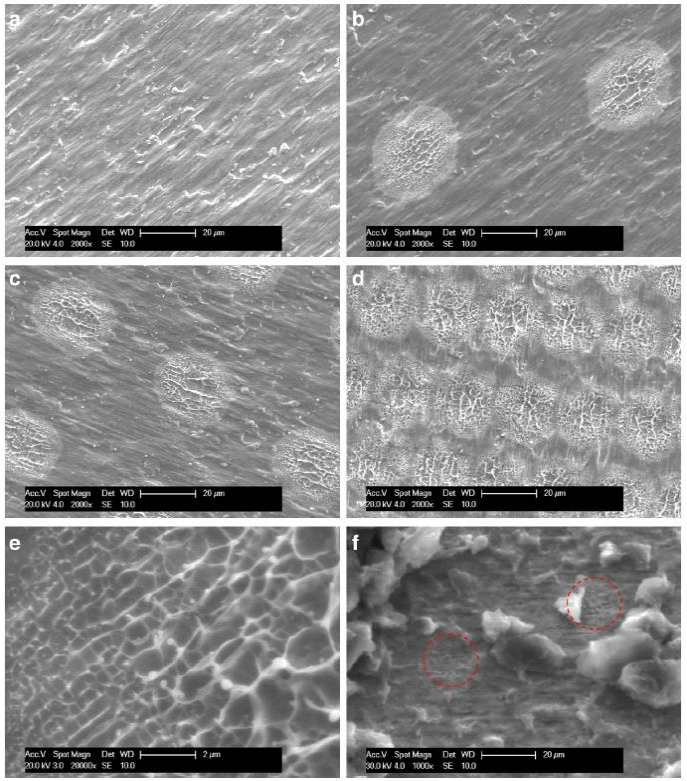
J Appl Electrochem (2017) 47:829–837
DOI 10.1007/s10800-017-1086-x

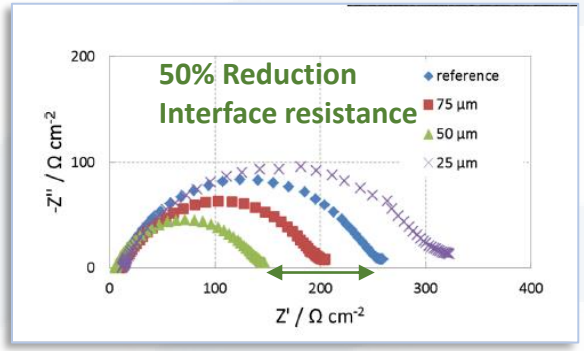
RESEARCH ARTICLE

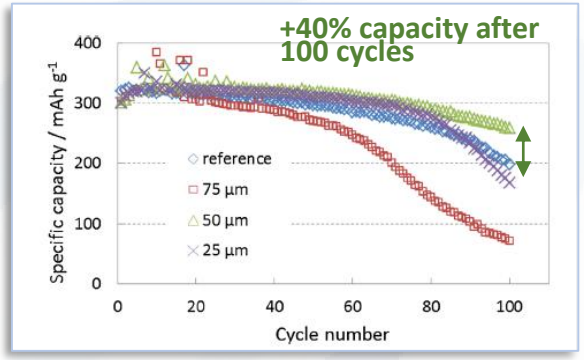
Laser structured Cu foil for high-performance lithium-ion battery anodes

Ningxin Zhang[1] · Yijing Zheng[2] · Atanaska Trifonova[1] · Wilhelm Pfleging[2,3]

Optimisation by Laser Spots distance variation

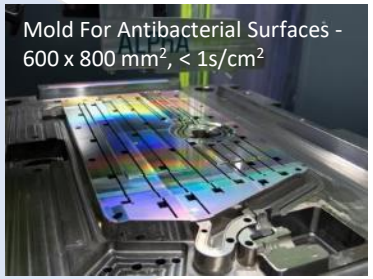






Through mass production

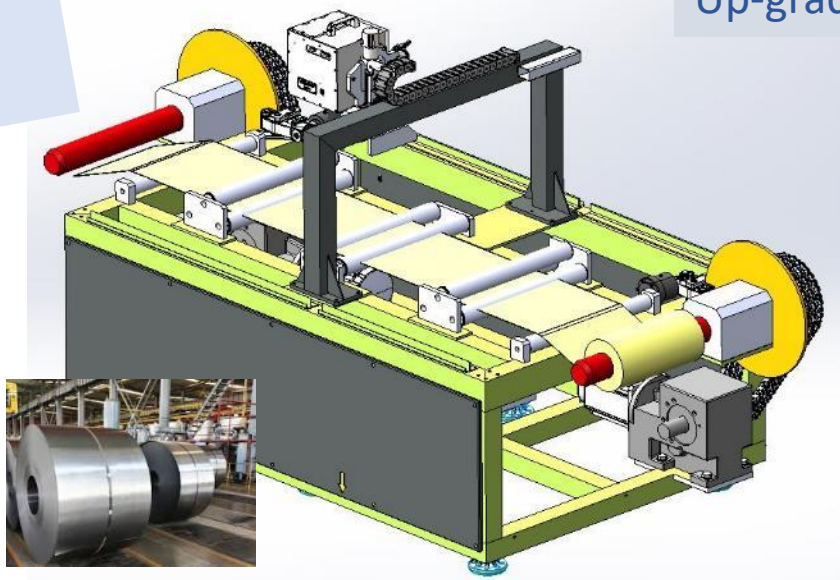
Today

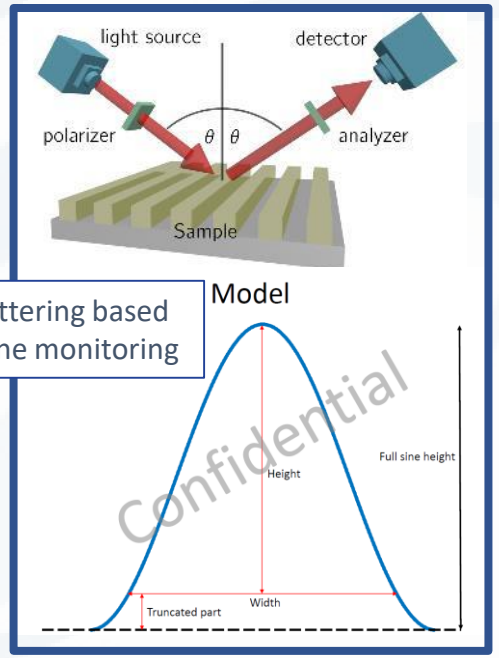


Polygon Scanner
200 m/s

- Continuous and Automated Roll to Roll laser processing
- Processing of Metal foils and other flexile materials
- Surface Texturing and functionalization
  (anti-icing, anti-fouling, anti-bacterial, self cleaning, etc.)

NewSkin
Up-grade





Scattering based
In-line monitoring

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