Advanced characterization of of thin protective films over steels developed by plasma assisted techniques

Prof. Dr. Sonia Brühl

Dr. Eugenia Dalibón, Lic. Laura Vaca

Dr. Flavio Soldera, Dr. Agustina Guitar (Uni Saarland)

National University of Technology (UTN)

Faculty of Concepción del Uruguay

Entre Ríos

Argentina

XI. Annual Merting of Argetine scientists in Germany 12-11-2020

The Surface Engineering Group

http://www.frcu.utn.edu.ar/gis/es_AR/

We work in:

- Plasma assisted surface modification treatments (ion nitriding and nitrocarburizing, plasma oxidation))
- PVD and CVD coatings deposited by plasma assisted techniques
- Combination of different surface processes

With the goal:

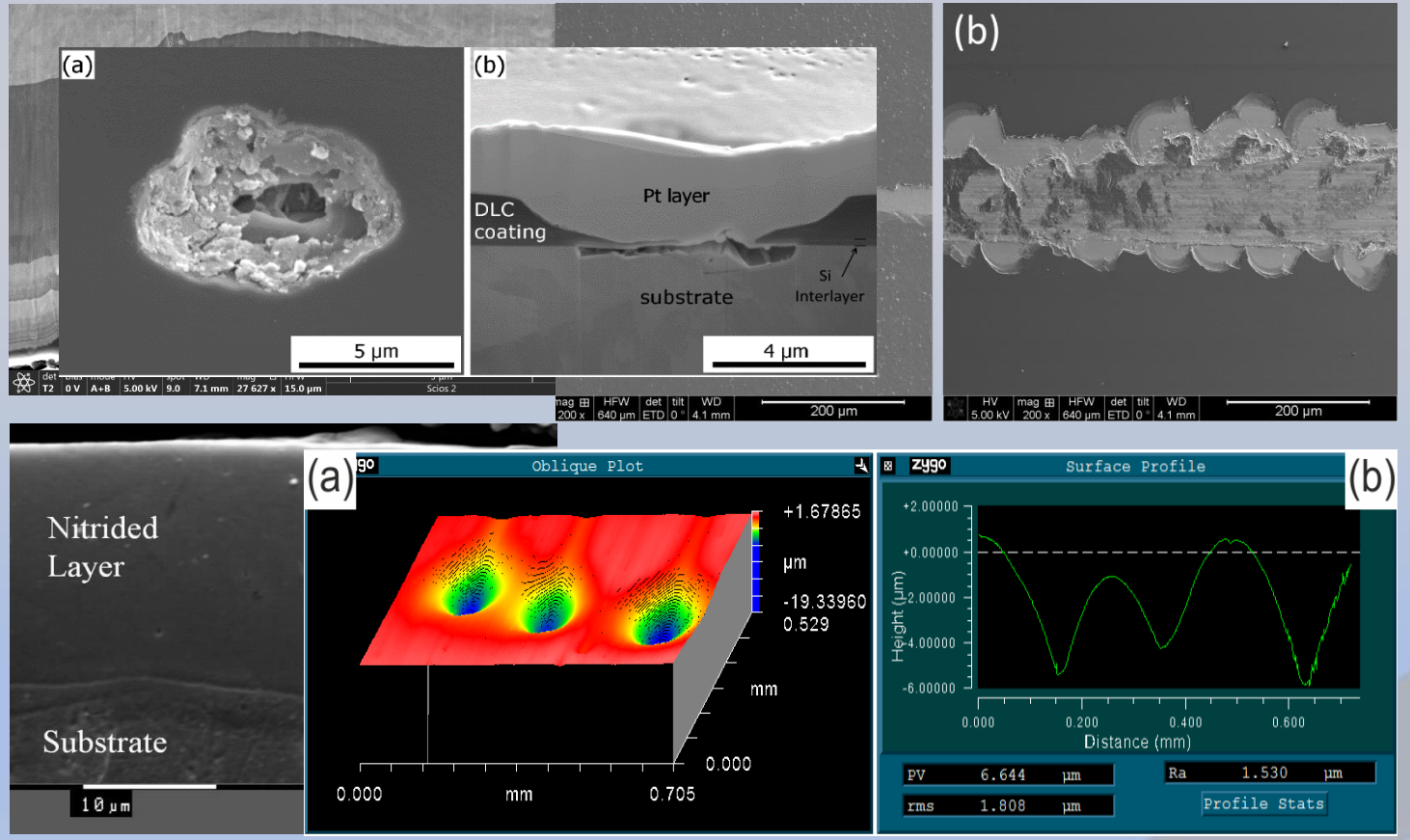
To increase wear and corrosion resistance of steels to increase the useful work-life of mechanical components in different industries

Sonia Brühl – sonia@frcu.utn.edu.ar

Advanced characterization

- Modified structures surface layers on surface and in depth
- Film-substrate interface
- Wear test scars, surface and subsurface
- Adhesion Scratch Test tracks
- Corrosion pits, from the surface and looking in the subsurface

OM, GDOES, SEM, FIB, EDS, WLI, Confocal Mic.



Sonia Brühl – sonia@frcu.utn.edu.ar

Main results

- Design of adhesion interlayers
- Determination of the coating suitable for a determined environment
- Design of process parameters (time, temperature, gases concentration, etc.)
- Effective transfer to the argentine firms which produce these processes and films
- Wear and corrosion tests comparing with overseas or inland commercial coatings

Collaboration with Germany

UNIVERSITÄT DES SAARLANDES

Prof. Frank Mücklich
Dr. Flavio Soldera
Dr. Agustina Guitar, Dr. Sebastián Suárez
Networks, res. stays, R&D, papers, fellows

IOM Leibniz-Institut für Oberflächenmodifizierung e.V.

Dr. Darina Manova
Dr. Stefan Mändl

Gracias – Danke!

TU BERGAKADEMIE FREIBERG

Prof. Horst Biermann
Dr. Anke Dalke

TECHNISCHE UNIVERSITÄT DRESDEN

Prof. Andrés Lasagni

Sonia Brühl – sonia@frcu.utn.edu.ar