



Research, analyses and cooperation possibilities at PřF UJEP

Zdeňka Kolská

Materials Centre of Usti nad Labem,

Projects: PARNET-partner's network, Ziele 3 ProTransfer

Faculty of Science, UJEP

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History:

- till 1991 only Pedagogical faculty
- 1991 UJEP
- 4.11.2005 - PřF

Departments:

- Biology
- Physics
- Geography
- Chemistry
- Informatics
- Mathematics
- Materials Centre of ÚL**



Materials Centre of ÚL

<http://umc.ujep.cz>

We offer:

Analytical service
Contracting research

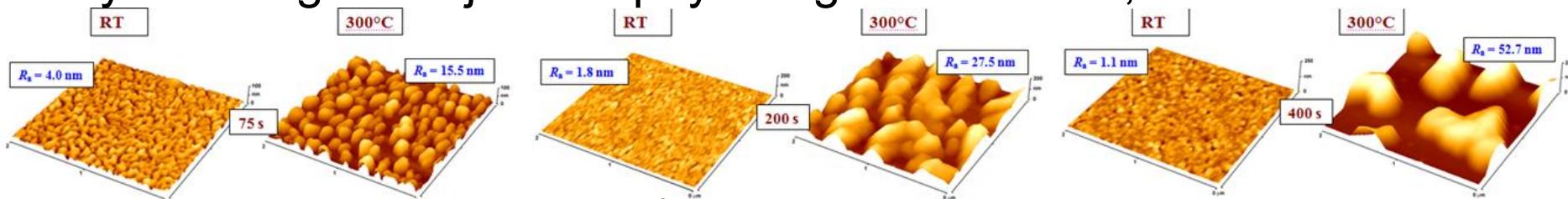


Materials Centre of ÚL

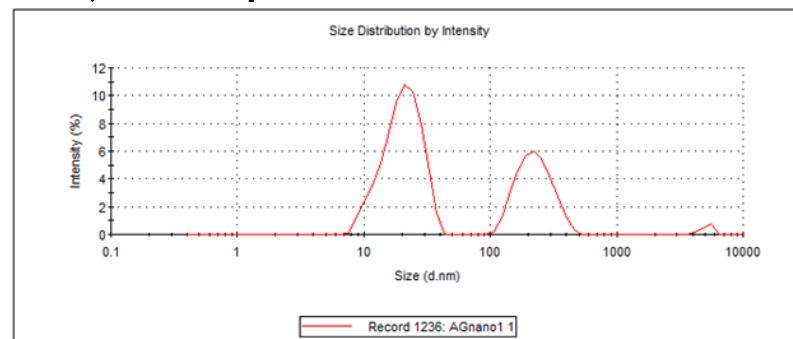
<http://umc.ujep.cz>, Analytical service

Equipment for material characterization

- AFM (Atomic Force Microscopy), surface morphology, roughness, study of biological objects in physiological solutions, etc. ...



- Fluorescent microscopy; surface plasma resonance;
- electrochemistry methods (galvanometry, cyclic voltammetry, ..)
- electron and UV lithography; spin coating, ...)
- Zetasizer nano (particle size and distribution, zeta potential of colloidal systems)





Materials Centre of ÚL

<http://umc.ujep.cz>, Analytical service

Equipment for material characterization

- refractometer, vibrating densimeter, viscozimetres
- **elektrokinetic analyzer for solid surface characterization**,
- thermosystem for phase transition temperatures



- **FTIR** (Fourier Transform Infrared Spectroscopy)
- **LCMS** (Liquid Chromatography with Mass detection)
- **AAS** (Atomic Absorption Spectroscopy)
- **Chronopotentiometry**, ...

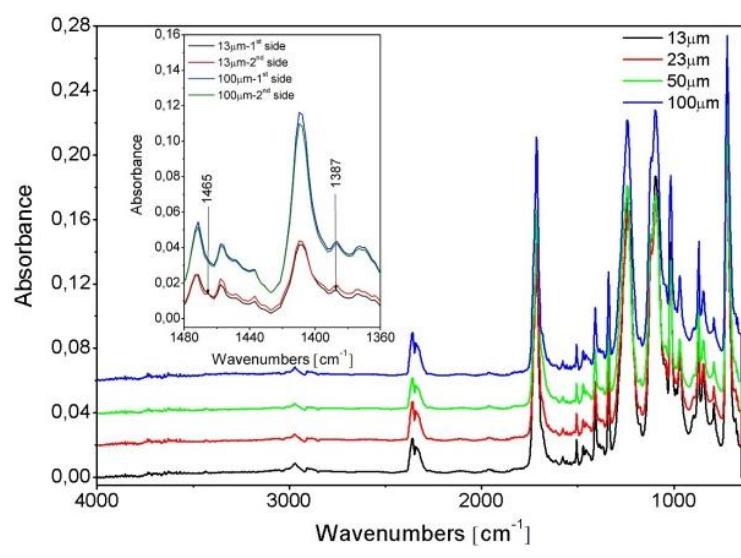
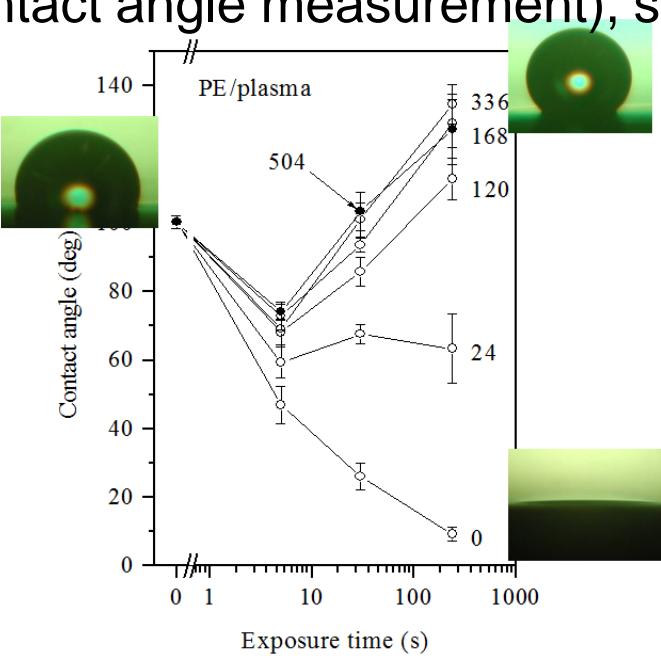
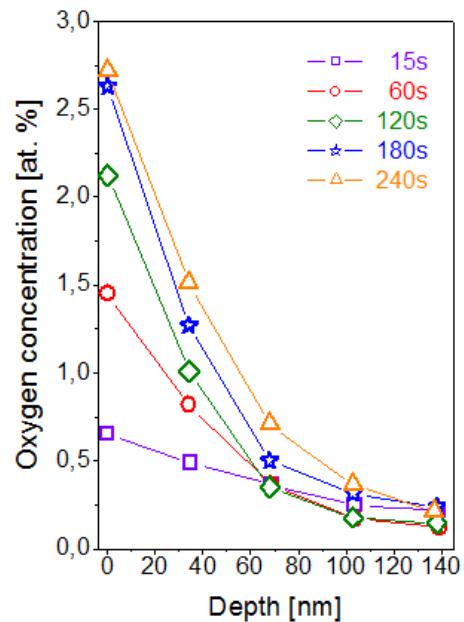


Materials Centre of ÚL

<http://umc.ujep.cz>, Analytical service

Equipment for characterization:

- **XRD** (X-ray Diffraction), physico-chemical make-up of solids
- **SEM** (Scanning Electron Microscopy), surface topography, composition,
- **SIMS** (Secondary Ion Mass Spectrometry), surface and bulk chemistry
- **XPS** (X-ray Photoelectron Spectroscopy), surface chemistry
- **Goniometry** (contact angle measurement), surface wettability, polarity





Materials Centre of ÚL

<http://umc.ujep.cz>, Contracting research



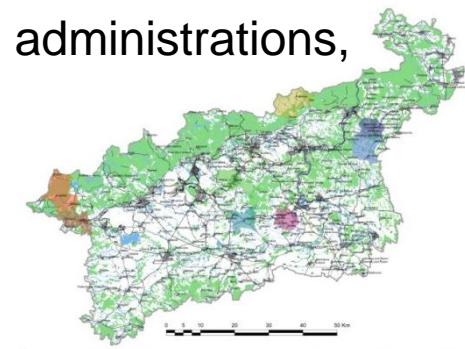
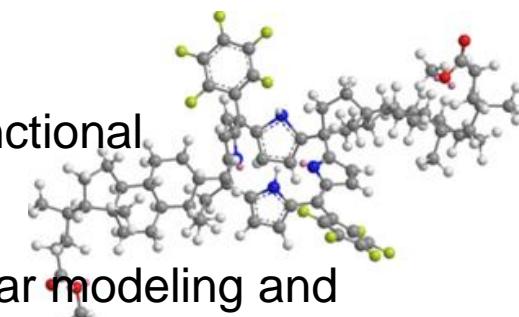
Plasma technology: preparation and characterization of thin metal nanostructures, nanolayers, their oxides, mixed oxides, on solid substrates.

Chemical technology: organic syntheses using microwaves

Supramolecular chemistry: preparation of supramolecular functional nanostructures and biosensors

Computer simulation and design of nanomaterials: molecular modeling and simulation for design, prediction of structures and properties of supramolecular and nanocomposite systems

Geography and socio-geography studies for variable institutes, administrations, public service, travel agencies, etc.



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PřF UJEP

Cooperation in:

Research, student stays, practices, excursions,
preparation or modification of study plans according to region requirement

Cooperation with:

Companies:

subjects: chemistry, physics, informatics, ... *many companies of region*

Educational institutions:

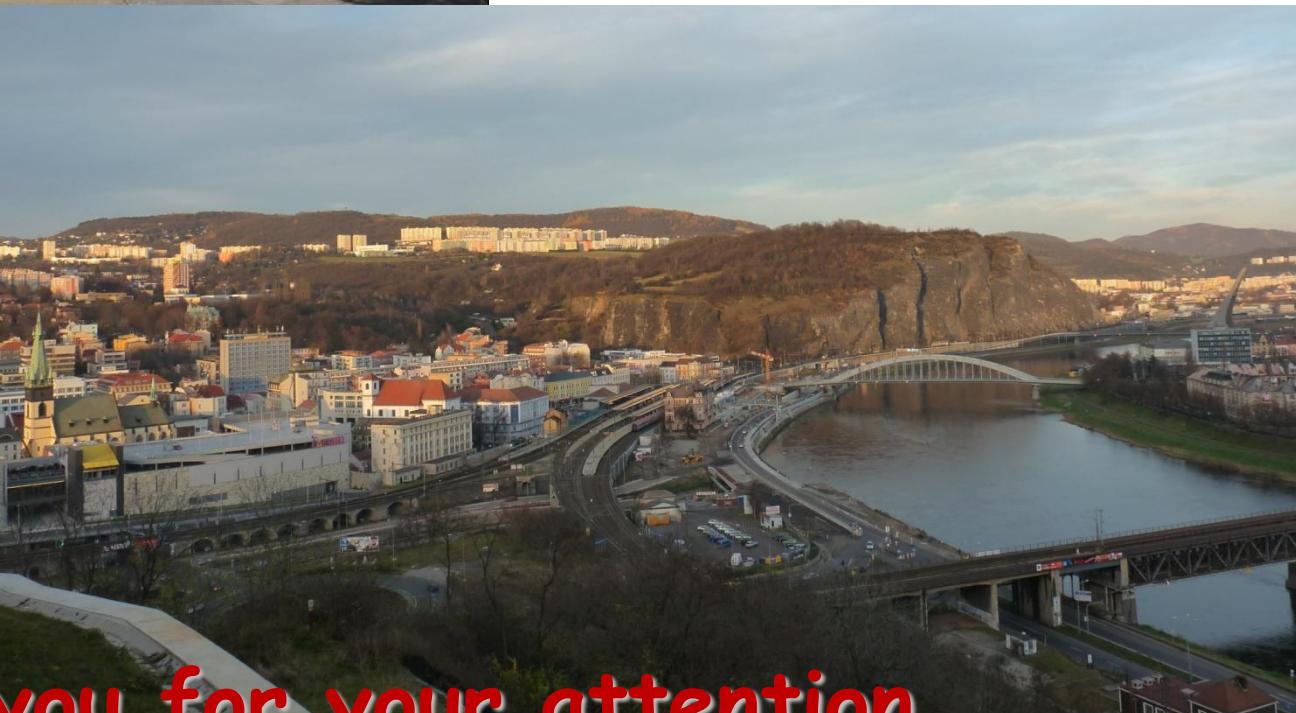
primary and secondary schools of ÚL, other Universities of ČR

Research institutions:

Departments of AV ČR, ...

Administration:

Regional authority of Ústí region, regional museum, ...



Thank you for your attention