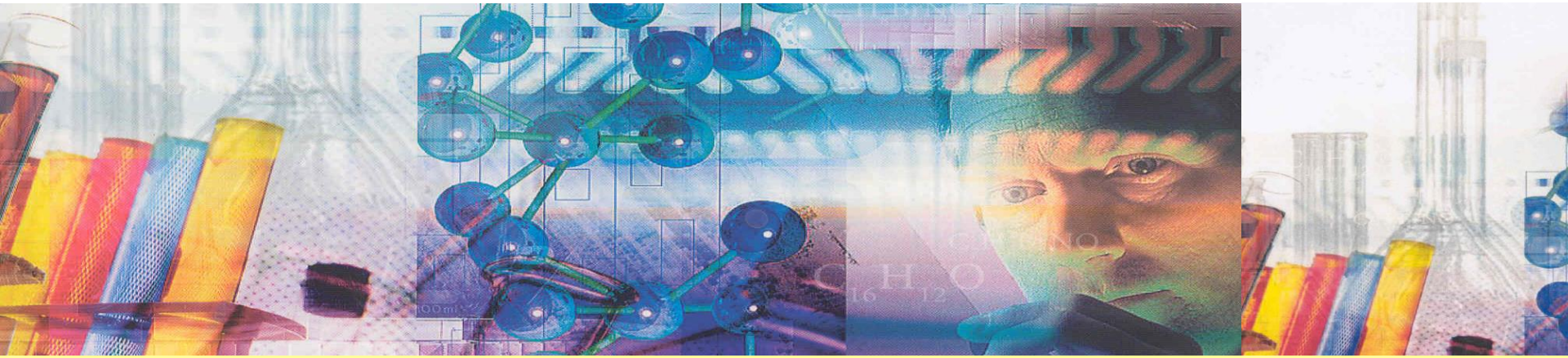
Company profile



Centre for Organic Chemistry Ltd.

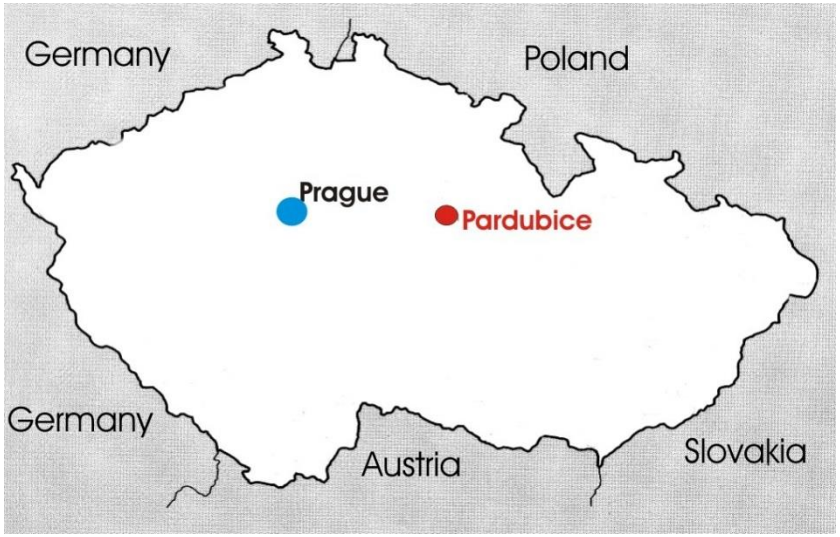
Introduction of company

Lubomír Kubáč

your partner in sophisticated organic chemistry

Company introduction

- Private research company founded in 2009
- R&D of organic compounds for application in industry and science
- Core business – electronics, photosensitizers, UV protection
- Up scaling and transfer of technology
- Small batch production of new compounds



COC equipment

- 6 research laboratories equipped for synthesis, isolation and purification
- 2 analytical laboratories for products characterisation
- Glass pilot plant room
- Laboratory for up scaling

Up scaling

100 g

10 kg

100 kg

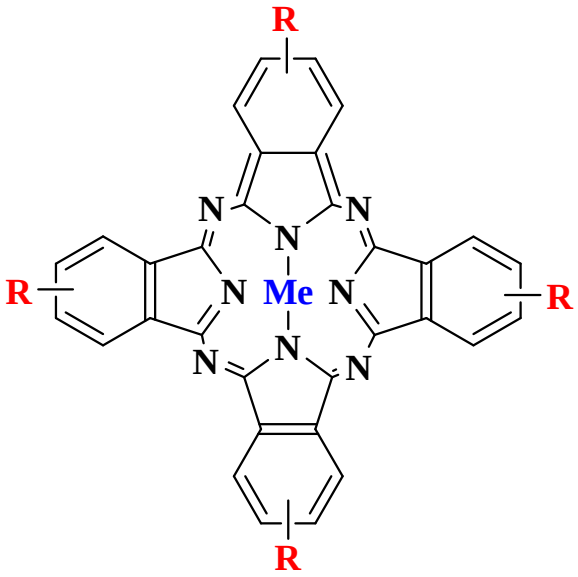
Core business

- R&D for companies or solving of collaborative projects supporting by Czech government and EU
- Small scale production of organic specialities
- Organic electronics
- Photoactive processes
- Surface modification
- Protection against UV radiation

Photoactive processes for life science

Phthalocyanines

- Photosensitive materials
- Application against bacteria, yeasts and fungies, self-cleaning application
- **Me** atom and **R** substitution have key influence on final activity againstt particular microorganism
- Substitution enables application in the form of solvent in water or organic solvents or dispersion

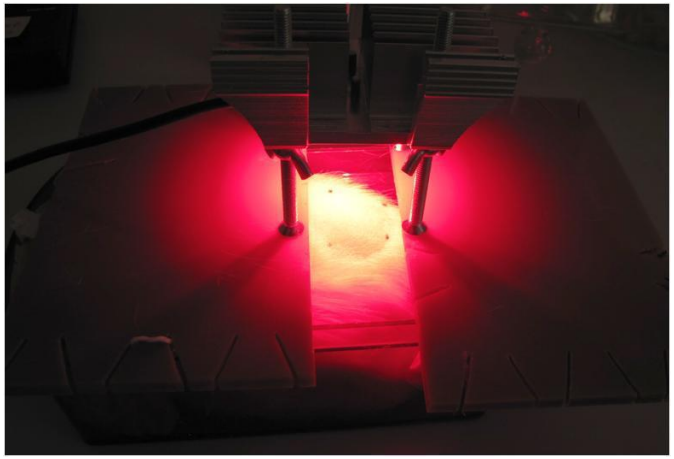


Phthalocyanines as photosensitizers

- Absorption capability of light radiation 600 - 700 nm. Interaction with air oxygen after excitation and oxygen reactive forms generation
- Life time tenths seconds
- Generated singlet oxygen is highly reactive, it has destructive influence on microbes
- Application for photodynamic therapy of cancer diseases
- Antimicrobial application in life science and industry
- Dangerous pollutants decomposition
- Application form – solution, dispersion, covalent bonded on the polymeric carriers

Dermatology applications

- In vivo testing on the Guinea pigs
- Light source developed
- Application form developed
- TRL 3-4



Process liquids

- Antimicrobial system for improving protection against microbial attack
- Light source developed
- Developed system of photoactive material dosing
- TRL 7

Elimination of pollutants

- System for elimination of the resistant polutant from waste water – hormones, medicines, AOX…
- Light source developed
- Application form developed
- TRL 5

Protection of paints

- TRL6 additives for varnishes

10.2.2010
Before coating

10.2.2010
after coating

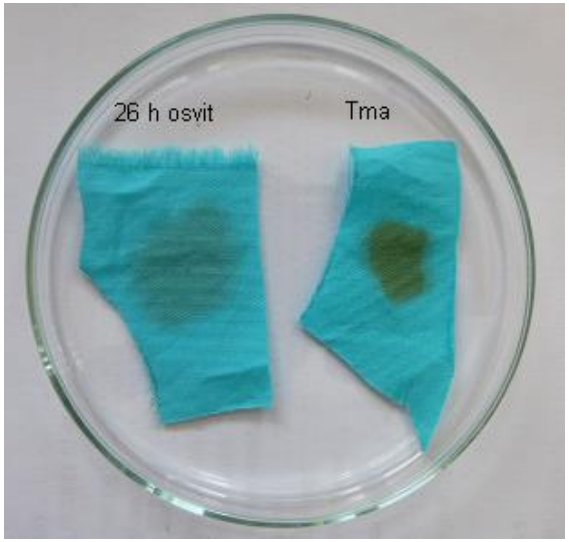
19.8.2010
control

Additived coating

Coating without additives

Photoactive textiles and foils

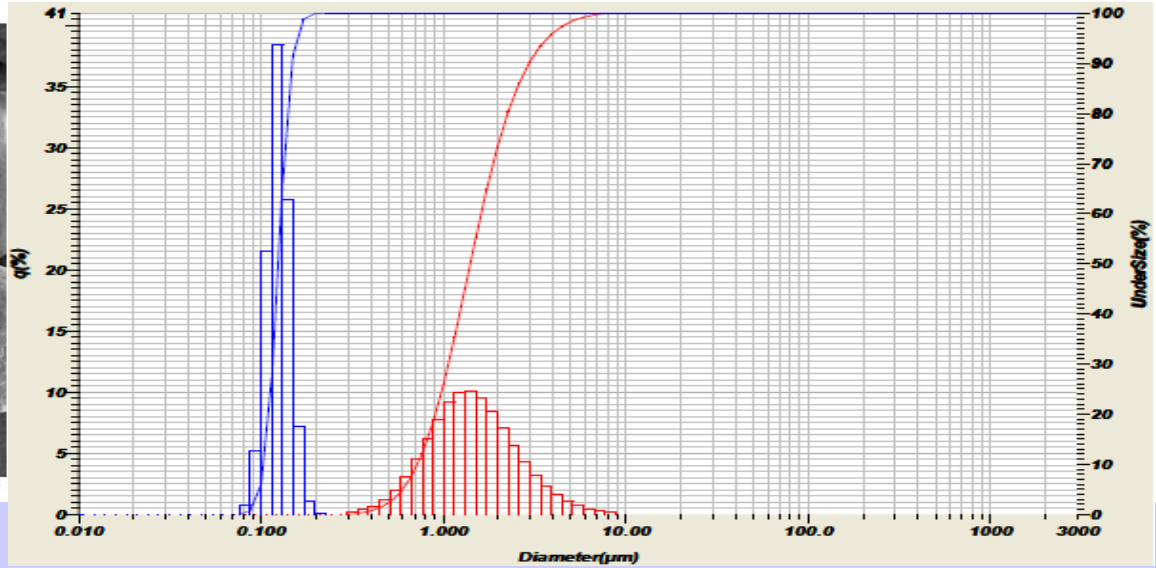
- Application in the form thin layer or reactive bonded in the mass
- Cotton, polyester, polypropylene, EVA, PVC materials
- Self cleaning effect
- TRL 4-5



Photoactive processes for industry

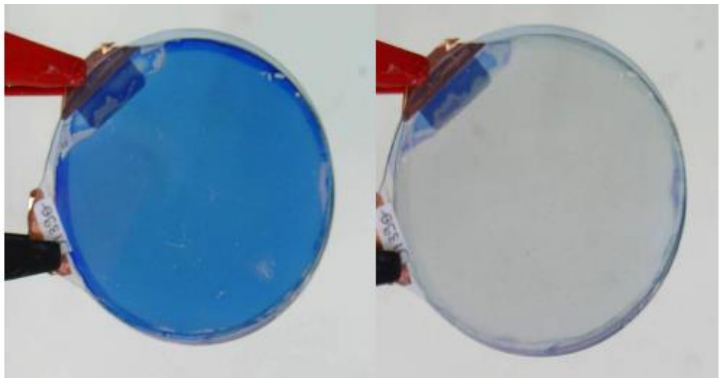
TiO_2

- Water dispersion of particles 100-150 nm prepared by pearl milling
- Primary nanoparticles 10-60 nm forming agglomerates ca 5 μm are mechanically disintegrated with dispersant mixture
- Application into varnishes and self-cleaning fabrics with stable carrier polymeric system



Organic electronics

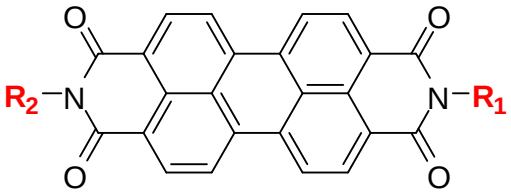
- R&D of materials for electronic devices
- Electrochromic flexible foils produces by R2R process (7FP, projects INNOSHADE, EELICON)
- Sensory systems for relative humidity and gasses
- Electronic elements and devices
- Photovoltaic, OFET, OECT

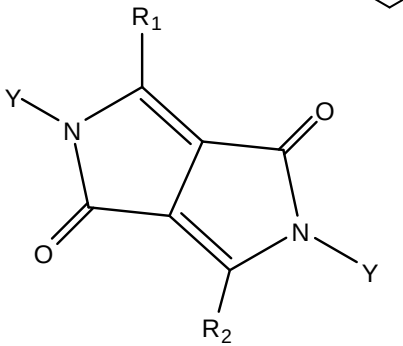


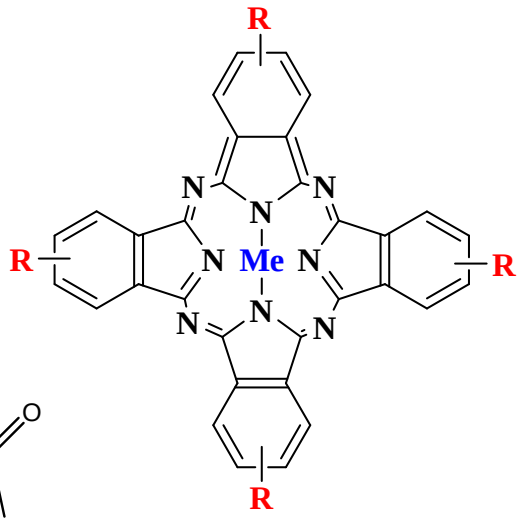
Organic electronics

Molecular compounds

- Phthalocyanines
- Perylenes
- Diketo-pyrrolo-pyrroles

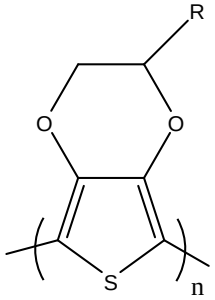






Oligomeric and polymeric compounds

- PEDOTs
- Polythiofenes
- Polypyrroles



Flexprint – Competence centre project

Consortium of 3 academic, 3 industrial and 1 private research organisation

Targets

- Smart packaging
- Smart textile
- Smart cards combining holographic and electronic secure systems
- Hybrid electronic flexible systems

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macro PRAGUE

OPTAGLIO® OPTICAL MICROSTRUCTURE TECHNOLOGIES

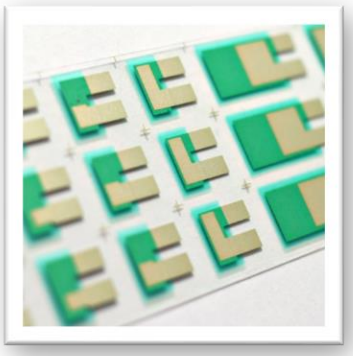
inoTEX®

OTK GROUP

Elements for electronic devices

Printed organic and hybrid elements

resistors



capacitors

HF, UHF antennas

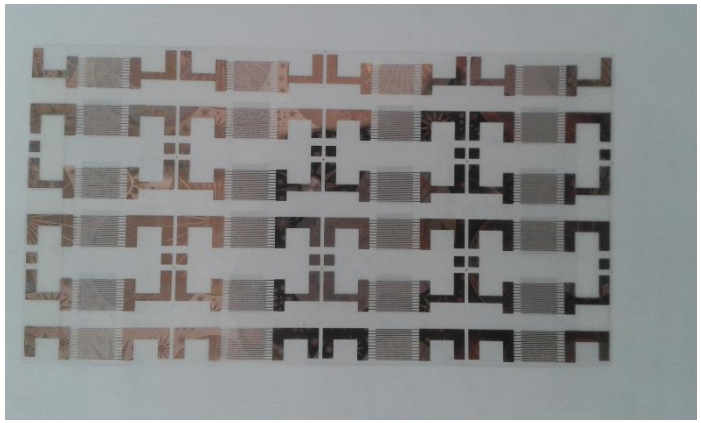
sensors

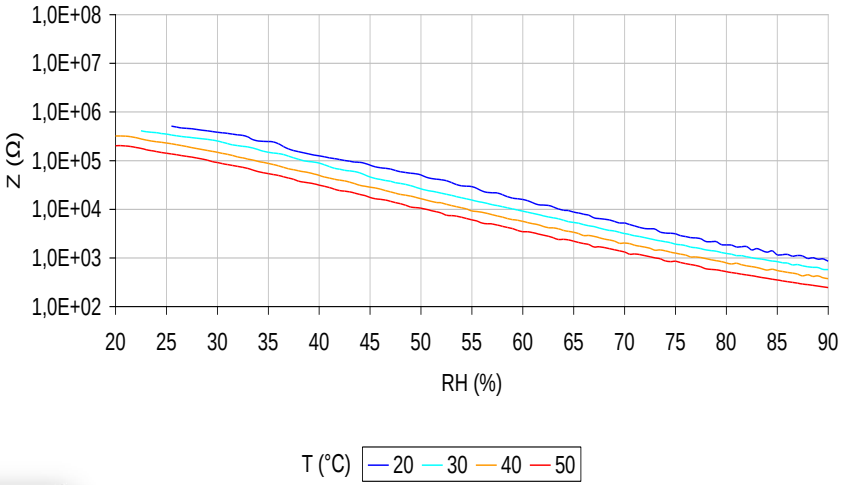
OEC transistors

batteries

Up scaling of organic electronics

RH sensors

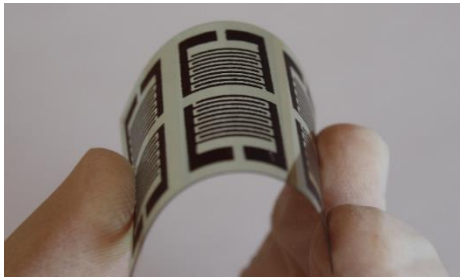


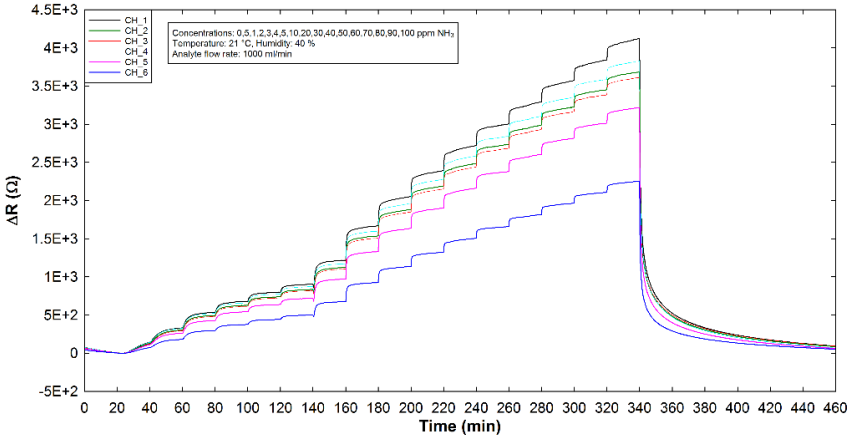


R2R printing system

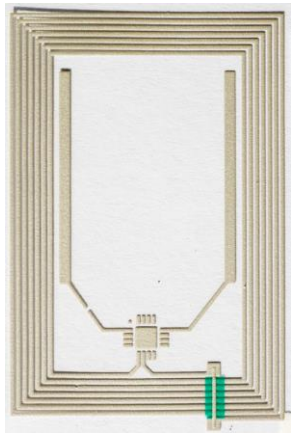
Up scaling of organic electronics

NH_3 sensors





Contactless label for temperature detection

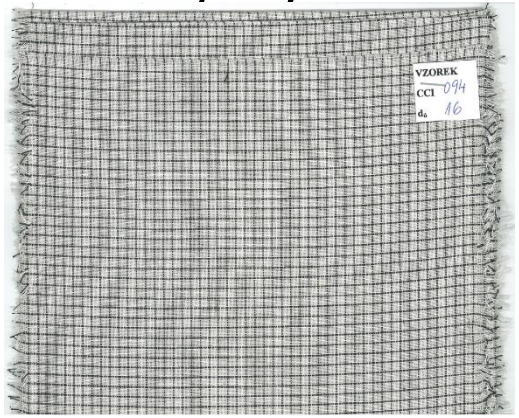


Up scaling of organic electronics

Permanent conductive textile materials

- Cotton fabrics – sheet resistance 10^2 Ohm, stable for 50 washing cycles

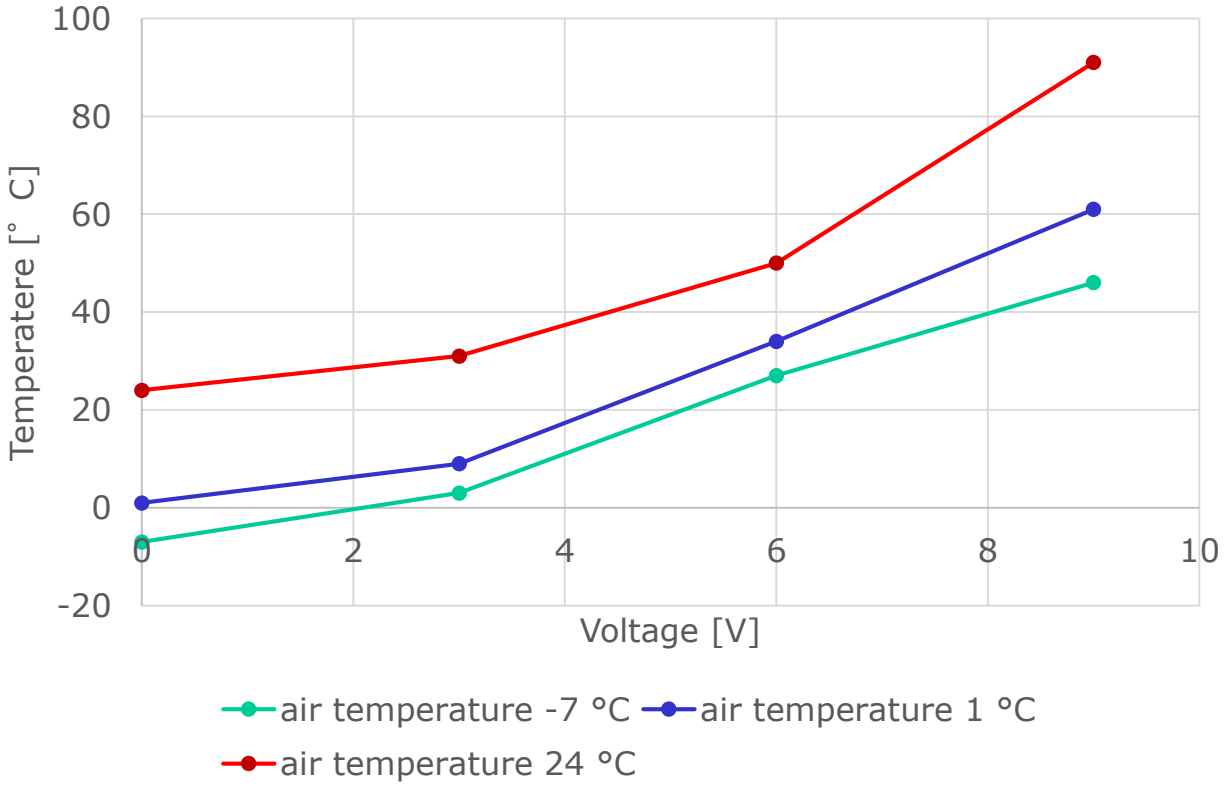
- Cotton fiber – resistance 10^2 Ohm/m, antistatic weaved fabric
- Sheet Resistance 10^4 Ohm



Conductive textiles

Material for wearable heating system

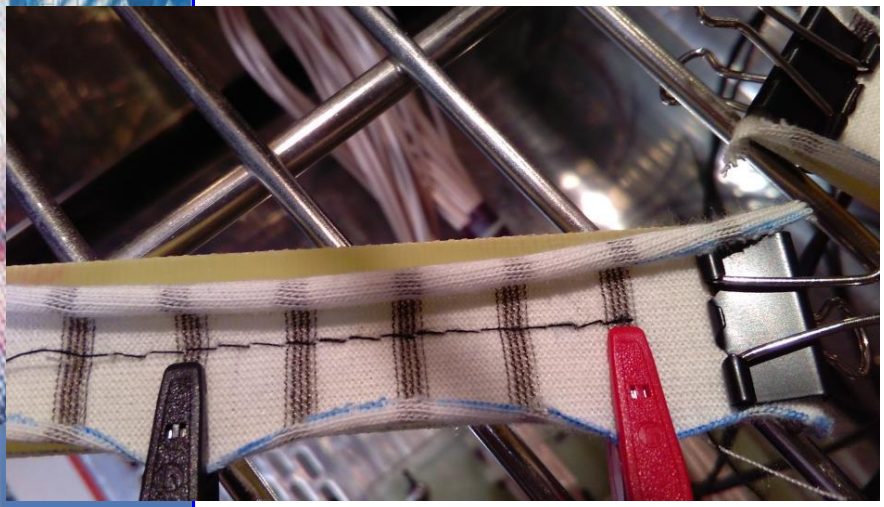
- Low voltage source for heating applications
- TRL4

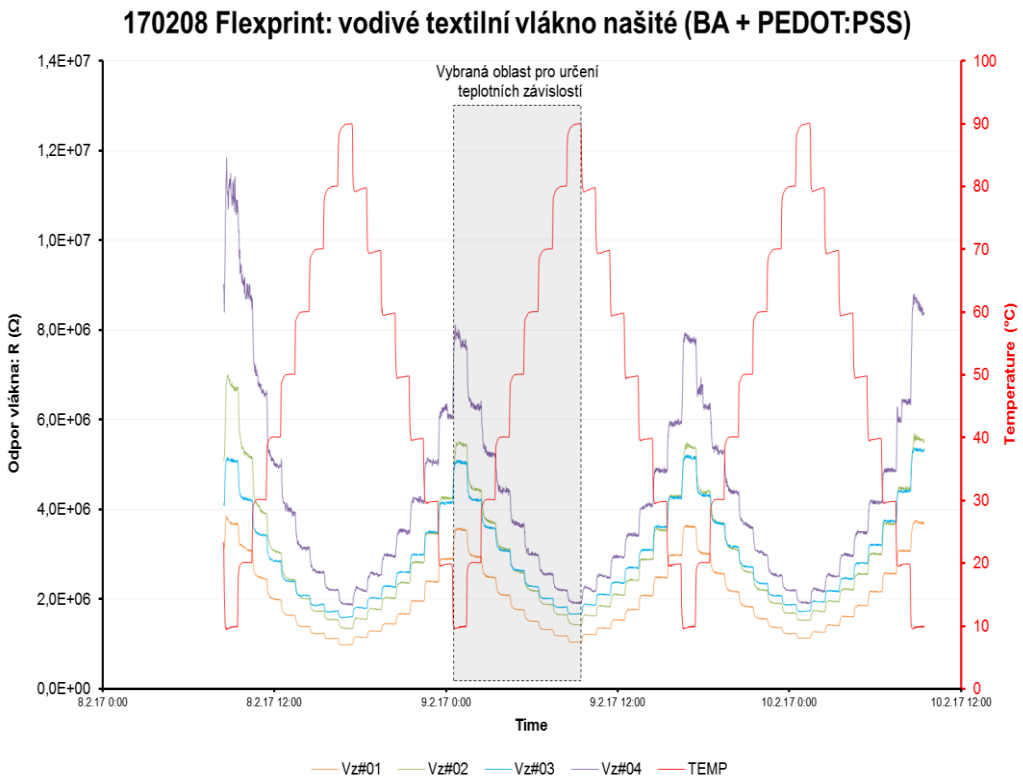


Conductive textiles

Temperature sensor

- Conductive yarn knitted into fabric
- TRL 2

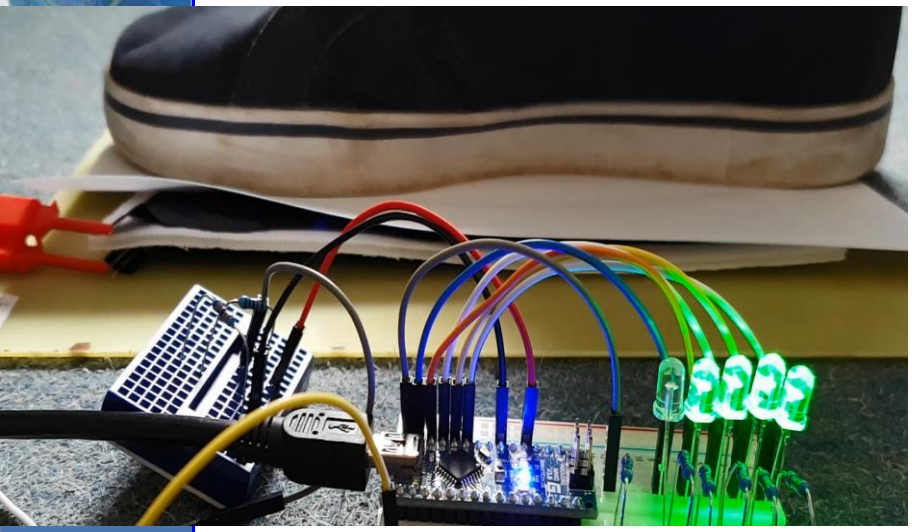


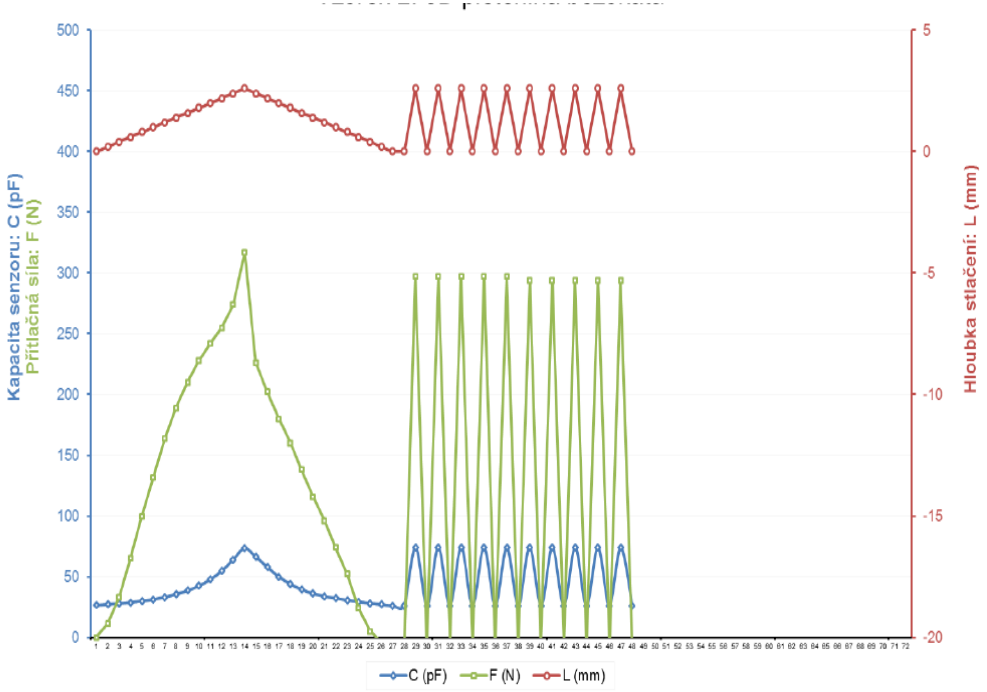


Conductive textiles

Pressure sensor

- Three layer system based on the changes of the capacitance
- TRL 2

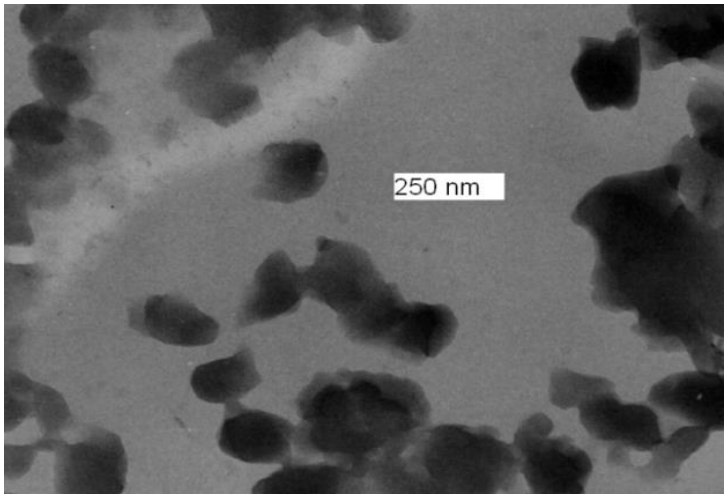


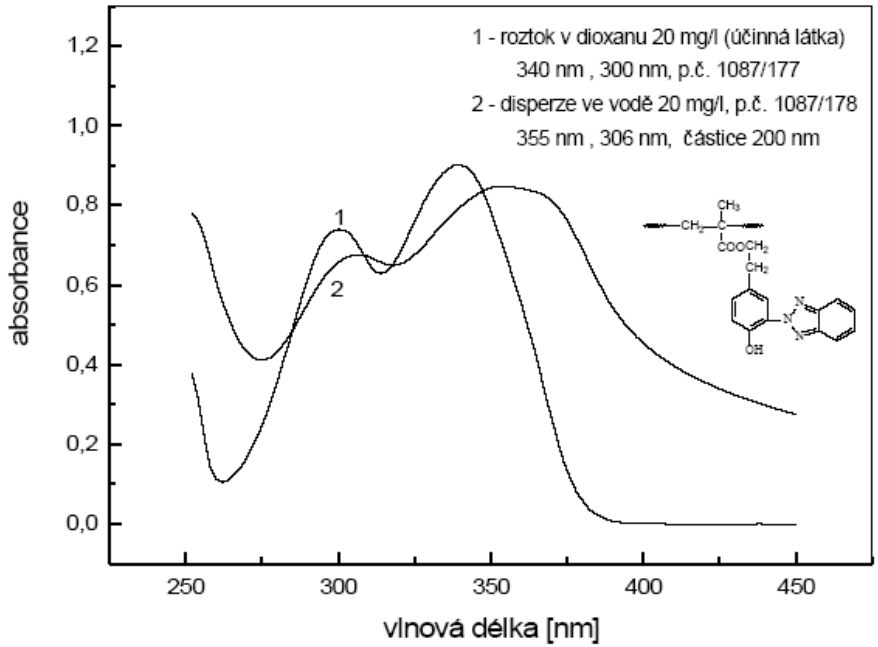


Protection against UV radiation

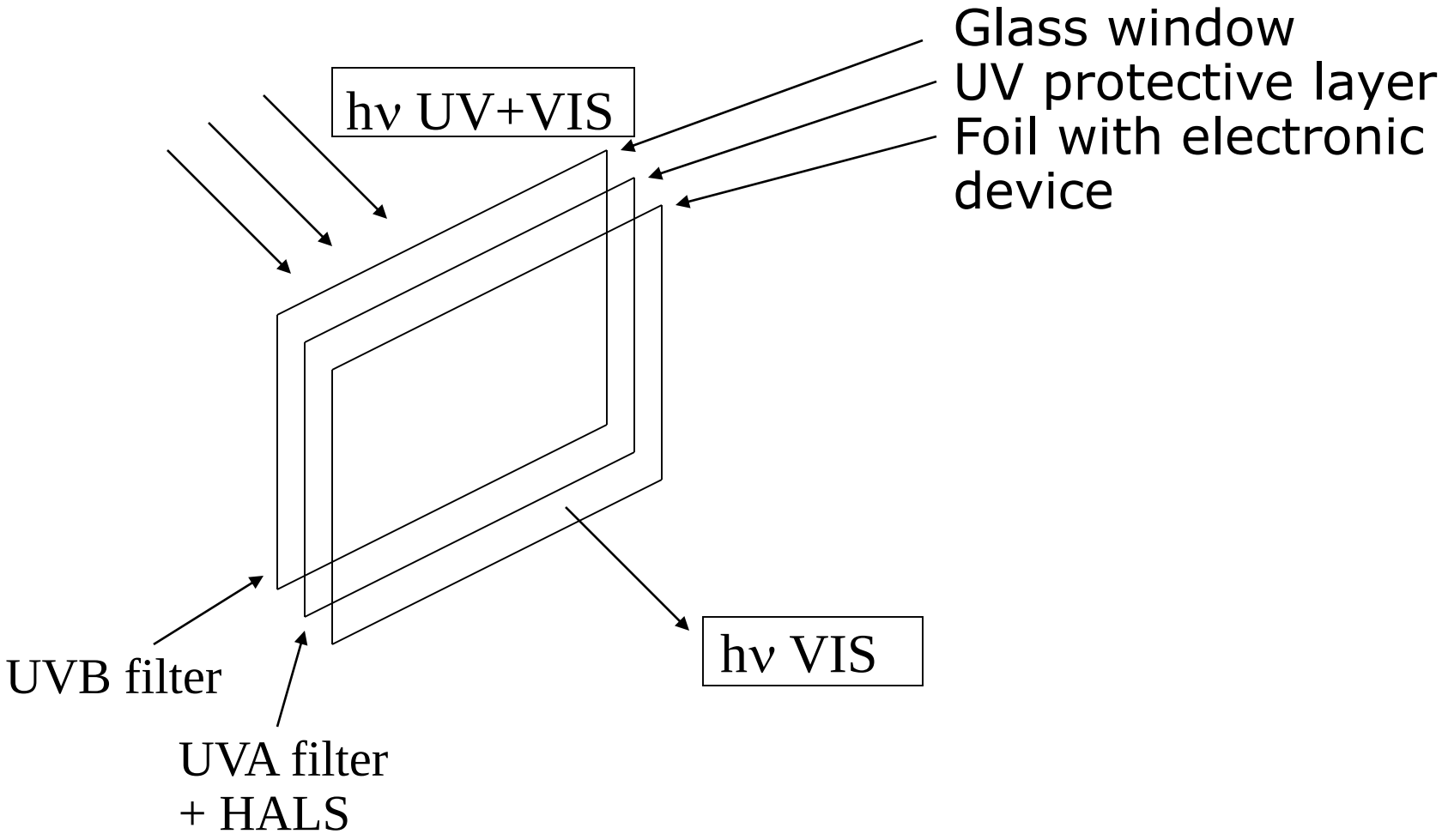
Cosmetics

- Water nanodispersion of polymeric UV absorber Cosol E
- Application into cosmetics, UV protective varnishes and adhesives, highly photostable, no migration in system



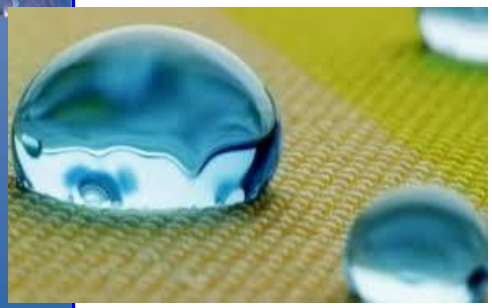


UV protection by self-adhesive foil



Hydrophobic protection

- Hydrophobic reactive sol-gel system for textile materials – permanent hydrophobic vapour permeable protection, self cleaning lotus effect
- Hydrophobic varnish for engineered stone – protection against pollution



Contacts

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