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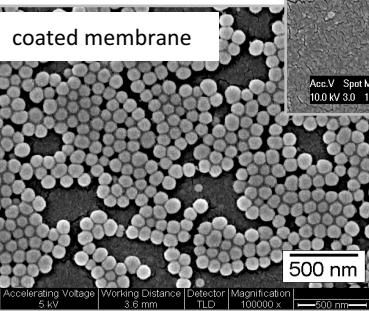
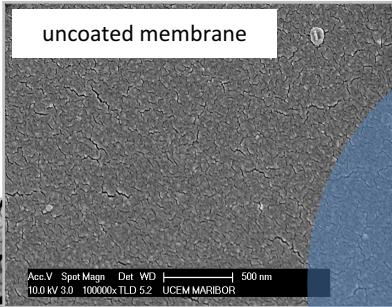
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IOS, Institute of Environmental Protection and Sensors, Ltd



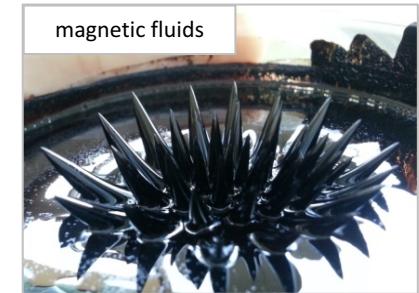
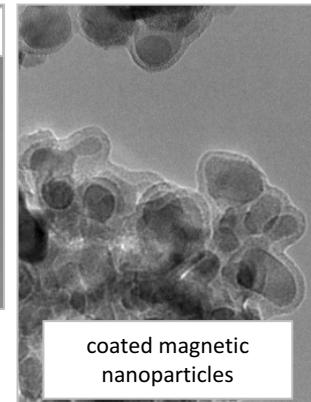
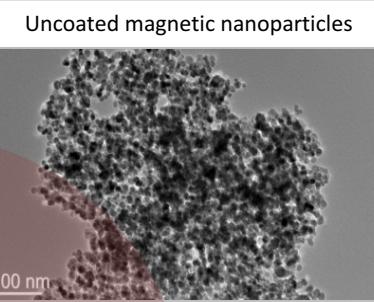
WATER ECOLOGY

OPTICAL CHEMICAL SENSORS

NANOTECHNOLOGY & NANOMATERIALS

PATENT: NM “20 patent applications” 10 EU and 2 USA

KOŠAK Aljoša, BAUMAN Maja, LOBNIK Aleksandra “*A method of surface treatment of thin film composite (TFC) membranes with tetraalkoxysilanes for retention of heavy metal ions in the membrane filtration processes of waste waters*”, Patent No. SI 23535 A, 2012, The Slovenian Intellectual Property Office, Ljubljana



PATENT:

LOBNIK Aleksandra, KORENT UREK Špela.

“*A method and an optical chemical sensor with a sol-gel membrane for the detection of organophosphates*”, EP 2 678 673 (B1), 2016-06-08.

Berlin, Germany: European Patent Office, 2016.

PATENT:

LOBNIK, Aleksandra “*Sol-gel based optical chemical sensor for detection of organophosphates and method for preparation thereof*”:

RU2013129043 (A), 2015-01-10; RS55040 (B1), 2016-12-30;

RS55040 (B1), 2016-12-30. Beograd. USA patent under consideration.

PATENT:

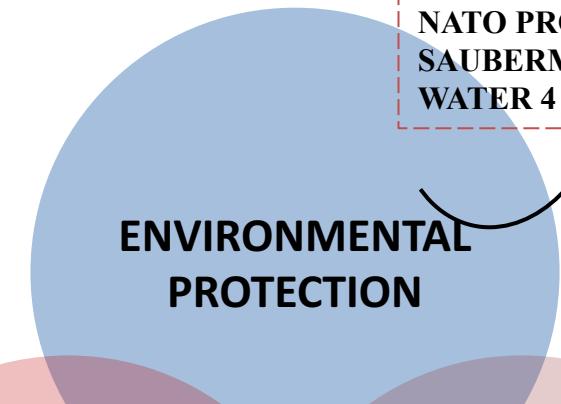
KOŠAK Aljoša, LAKIĆ Marijana, LOBNIK Aleksandra, “*Process for the preparation of superparamagnetic hollow spherical nanostructures*”, GB2526659 (A), 2015-12-02. London: Intellectual property office, 2015.

IOS, Institute of Environmental Protection and Sensors



CITEX AWARD
SLOVENIAN ARMY
AWARD
THE BEST INNOVATION
2014;

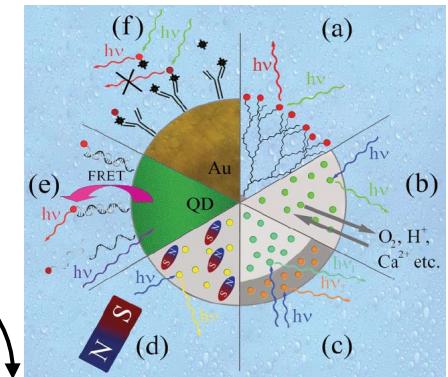
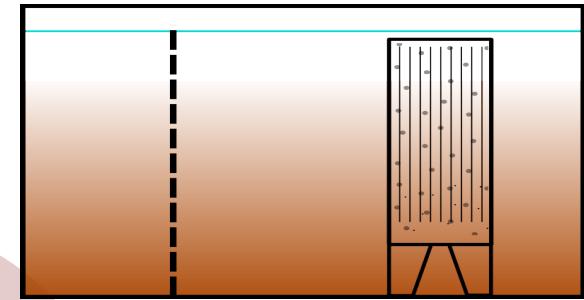
FOOD SENSORS
PROTECTION / SECURITY
ENVIRONMENTAL
MONITORING



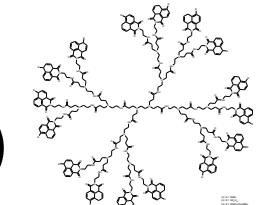
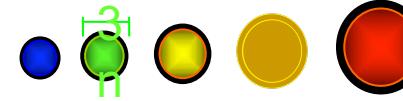
OPTICAL
CHEMICAL/BIO
SENSORS

NANOTECHNOLOGY
& NANOMATERIALS

RESYNTEX EU PROJECT; 20 PARTNERS, 11 milj €
NATO PROJECT
SAUBERMACHER AWARD
WATER 4 FUTURE (MBR); MEMBRANE TECHNOLOGY

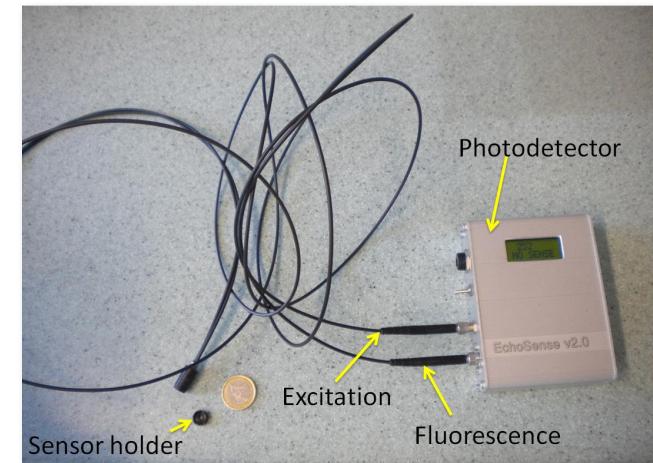
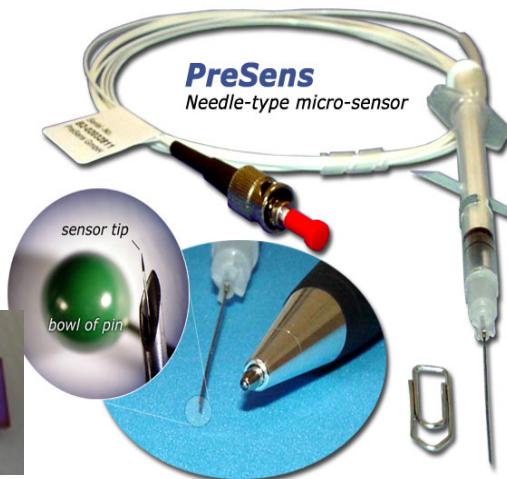
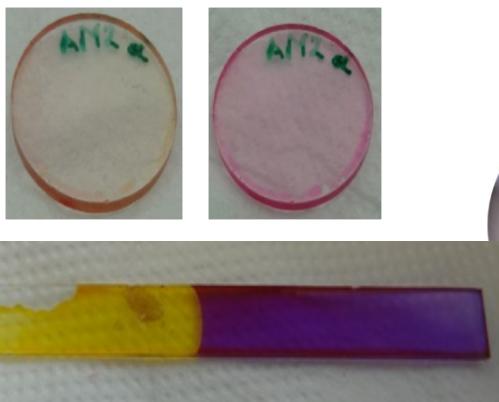


MEDICAL / ENVIRONMENTAL / SENSOR APPLICATIONS
SOL-GEL TECHNOLOGY
SIO₂ NANOPARTICLES
MAGNETIC NANOPARTICLES
QUANTUM DOTS
DENDRIMERS



Optical chemical/Bio sensors

- On-line, In-situ, in-vivo measurements;
- Remote monitoring
- No interferences to electrical and magnetic fields;
- Secure detection in in-secure environment (explosives,...);
- Simple miniaturization, Wearable technology;
- With one detector several analysis are possible;
- Nanomaterials enhance the sensitivity,
- selectivity,response time;



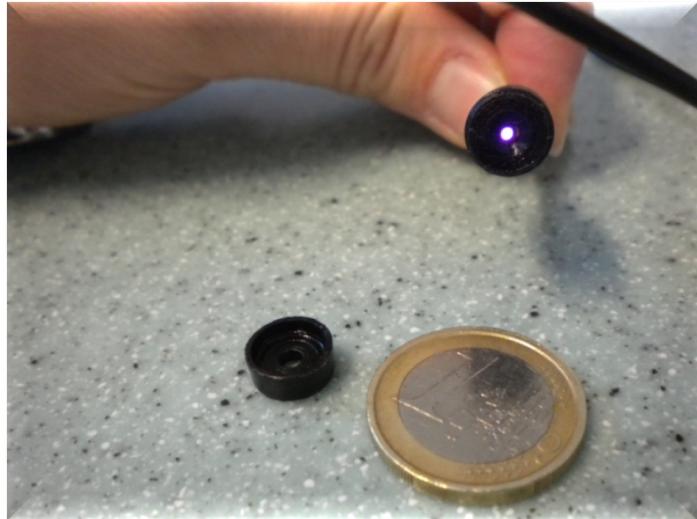
Application of chemical/ bio optical sensors

- Personal security
- Environmental protection
- Quality of Life
- Process parameters
- Food control
- Longterm monitoring
- Difficult accesible sites (in-vivo, ...)
- High T, high pressure, radioactivity,)
- Polluted environment



OPTISENS

For soldier CWA personal detection



Convenient for personal security

Small and light

Sensors for in situ detection of Sarin, Soman, VX, Tabun:

- *In nM concentration range ; response in few seconds*
- *No electromagnetic interferences*

IOS, Ltd and Projects (not all listed)

NATO project (IOS project coordinator)

Science for Peace Projekt: »Removal of heavy metals and radionuclides from water using ceramic and polymer membranes« (SfP 984398)

Partners: Univerza v Mariboru, Fakulteta za strojništvo, Center za senzorsko tehniko, Slovenia; Chuiko Institute of Surface Chemistry (CISC), Ukrajina; Institute of Chemical Process Fundamentals (ICPF), Česka, IOS, Ltd.



EU Horizont 2020 project (IOS, project co-coordinator)

RESYNTEX project - A new circular economy concept: from textile waste towards chemical and textile industries feedstock

Topic: WASTE-1-2014: Moving towards a circular economy through industrial symbiosis

Type of action: Innovation;

OPTICAL

Duration of the project: 42 months;

CHEMICAL

20 partners

SENSORS

NANOTECHNOLOGY
& NANOMATERIALS

MinEra Net project (IOS, project coordinator)

MetRecycle Reccling of Metals using functionalized magnetic nanomaterials

Partners from Countries: Slovenia, IOS, Ltd, Sweden, Argentina, France

Duration: 2018-2021