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Posters with examples of synchrotron research projects

Project acronym: Sylinda

Project full title: Synchrotron Light Industry Applications

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PU	Public	V
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including Commission Services)	
CO	Confidential, only for members of the consortium (including Commission Services)	

Document History

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26.06.2023	1.0	Initial draft	Dr. Susanne v. Ameln
24.07.2023	1.1	Final version approval	Dr. Susanne v. Ameln

Objectives of the action

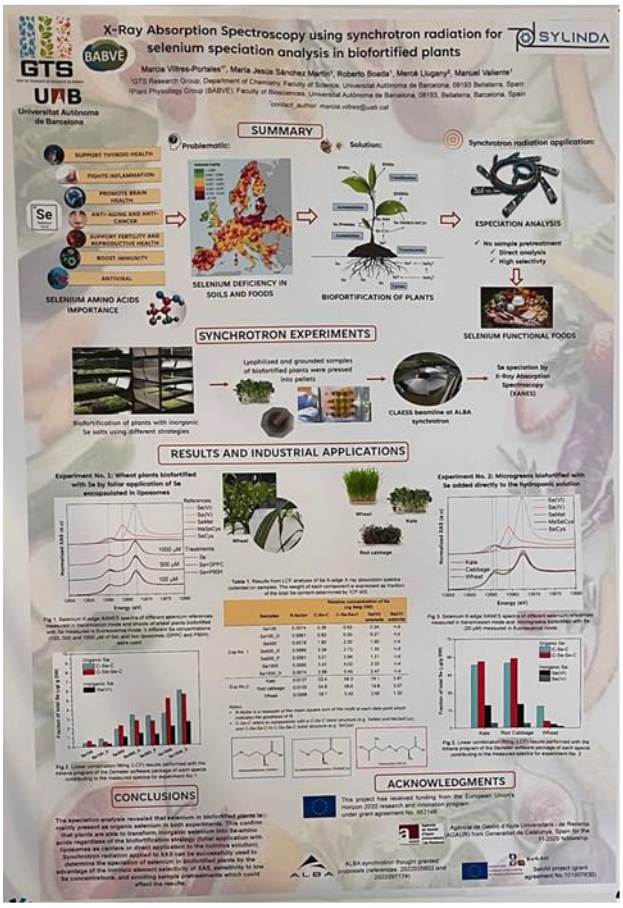
The poster session took place during the Industry Workshop at the SOLARIS NSRC premises between 14th and 15th June 2023. Young scientists affiliated to the Sylinda partners prepared scientific posters presenting examples of synchrotron research projects. Specific poster's topics on possible applications of synchrotron based techniques to industry were discussed and agreed with the appropriate Science Management Department at the partners organizations. . The preparation of the posters and participation in the poster session gave young scientists a unique opportunity to expand their knowledge of science management and enable communication with industry. Additionally, young researchers could learn about the specific needs of industry partners.

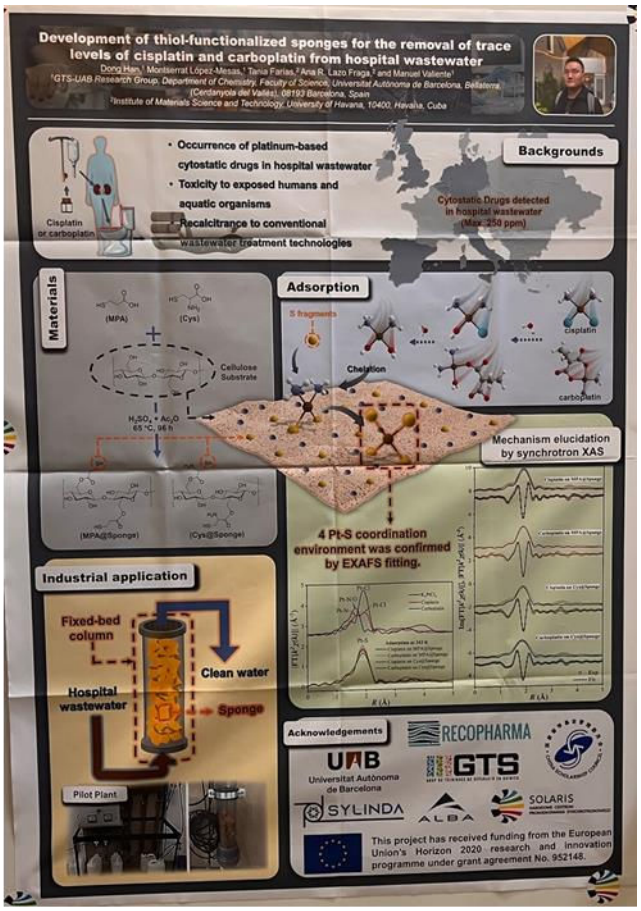
List of posters presented at the Industry Workshop. Bold topics are presented as a examples at the bottom of the document:

1. "*Dye fabric with structure color*", authors Di Cai, Boris Mahkltig
2. **"*X-ray absorption spectroscopy using synchrotron radiation for selenium specistion in biofortified plants*"**, authors Marcia Viltres- Portales, María-Jesús Sánchez-Martín, Roberto Boada, Mercè Llugany, Manuel Vallente
3. "*Do the dietary conditions of hens influence eggshells quality*?", authors Iris H. Valido, Maria Angels Subirana, Rosa Mary Lopez-Alvarez, Sandra Mounicou, Florent Penen, Montserrat Lopez-Mesas, Ibraheem Yousef, Stéphane Faucher, Pascale Sénéchal, Peter Moonen, Alessandra Monteiro, Dirk Schaumlöffel
4. **"*Development of thiol-functionalized sponges for the removal of trace levels of cisplatin and carboplatin from hospital wastewater*"**, authors Dong Han, Montserrat Lopez-Mesas, Tania Farias, Ana R. Lazo Fraga, Manuel Vallente
5. **"*How can synchrotron help Startups and Industry*"**, author Stephanie Bienefeld
6. ***"The soft X-ray spectroscopy beamline Phelix at the SOLARIS Synchrotron"***, authors Edyta Bayer, Magdalena Szczepanik, Tomasz Sobol, Ewa Partyka-Jankowska
7. ***"A powerful new SOLARIS beamline for applied research"***, authors Henning Lichtenberg, Alexey Maximenko, Josef Hormes, Alexander Prange
8. *"Advanced research technique for high tech"*, author Natalia Olszowska
9. "*Thiazoloethiazole derivatives as new materials for memristive and semiconductor devices*", authors Lulu Alluhaibi, Karolina Gutmańska, Alexey Maximenko, Ewelina Kowalewska, Andrzej Sławek, Konrad Szaciłowski, Anna Dołęga
10. ***"CIRI beamline – chemical infrared imaging – new research opportunities"***, authors Karolina Kosowska, Paulina Kozioł, Danuta Liberda, Maciej Roman, Tetiana Stepanenko, Tomasz Wróbel
11. *"Materials and chemical research at the PIRX beamline"*, authors Ewa Partyka-Jankowska, Joanna Stępień, Marcin Zając

12. ***"Sample holders and in situ cell construction for ASTRA beamline"***, authors Marcin Brzyski, Dora Zalka, Alexey Maximenko
13. ***"Synchrotron techniques to unravel ARF DNA Binding Domain function"***, authors Isidro Crespo, Willy van den Berg, Dolf Weijers, Roeland Boer
14. *"POLYX at SOLARIS: layout, specification & first results"*, authors Katarzyna Sowa, Paweł Wróbel, Tomasz Kołodziej, Wojciech Błachucki, Paweł Korecki
15. *"SOLARIS Cryo-EM Facility"*, authors Paulina Indyka, Michał Rawski, Grzegorz Ważny, Marcin Jaciuk, Sebastian Glatt

Figure 1: Poster session of the Sylinda Industry Workshop


X-Ray Absorption Spectroscopy using synchrotron radiation for selenium speciation analysis in biofortified plants
SYLINDA
SUMMARY
Problematic:
Solution:
Synchrotron radiation application:
ESPECIATION ANALYSIS
SELENIUM DEFICIENCY IN SOILS AND FOODS
BIOFORTIFICATION OF PLANTS
SELENIUM FUNCTIONAL FOODS
SELENIUM AMINO ACIDS IMPORTANCE
SYNCHROTRON EXPERIMENTS
CLAESS beamline at ALBA synchrotron
RESULTS AND INDUSTRIAL APPLICATIONS
CONCLUSIONS
ACKNOWLEDGMENTS


Development of thiol-functionalized sponges for the removal of trace levels of cisplatin and carboplatin from hospital wastewater
Backgrounds
Occurrence of platinum-based cytostatic drugs in hospital wastewater
Toxicity to exposed humans and aquatic organisms
Recalcitrance to conventional wastewater treatment technologies
Cytostatic Drugs detected in hospital wastewater (Max. 250 ppm)
Materials
Adsorption
Chelation
Mechanism elucidation by synchrotron XAS
4 Pt-S coordination environment was confirmed by EXAFS fitting.
Industrial application
Fixed-bed column
Clean water
Hospital wastewater
Sponge
Pilot Plant
Acknowledgements


Author: Stephanie Bienefeld
Hochschule Niederrhein
University of Applied Sciences
How can Synchrotron help Startups and Industry?
HNX
Your way to start up
contact: stephanie.bienefeld@hsnr.de
www.hsnr.de/HNX
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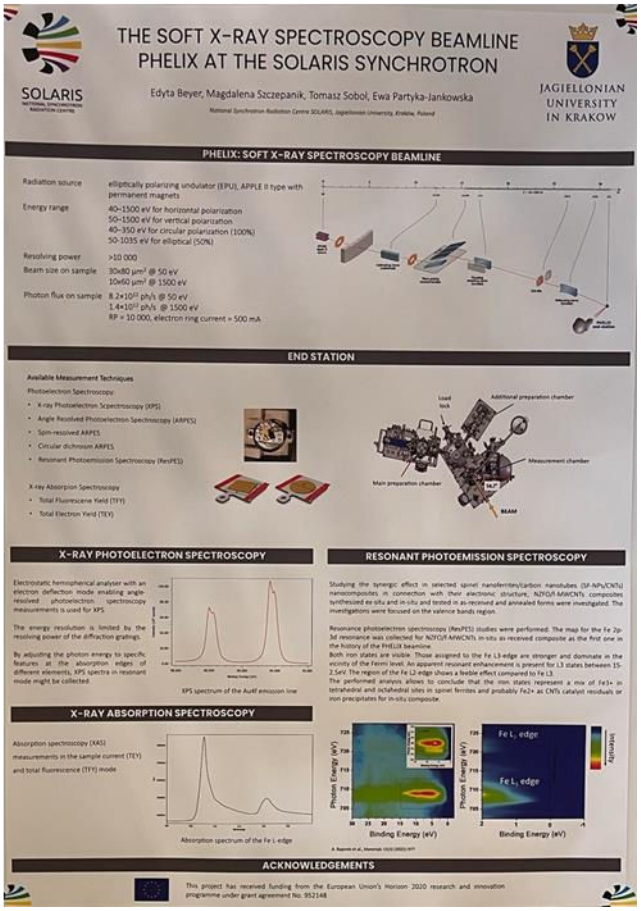
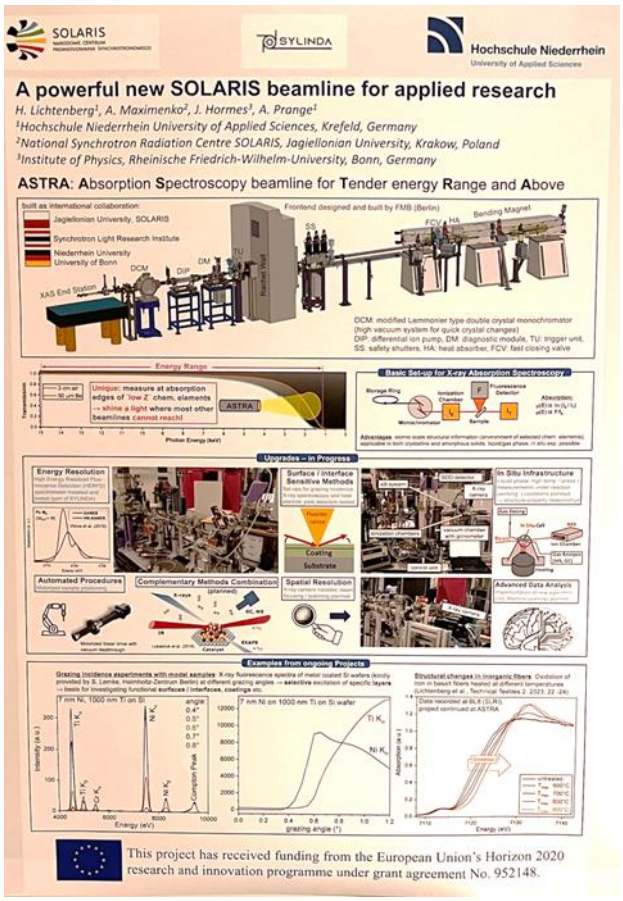
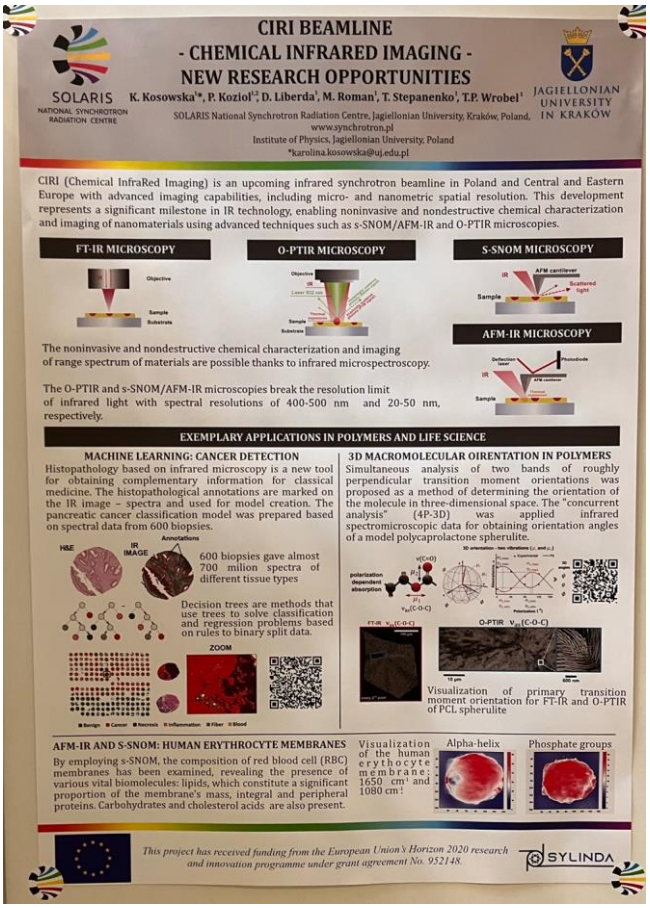
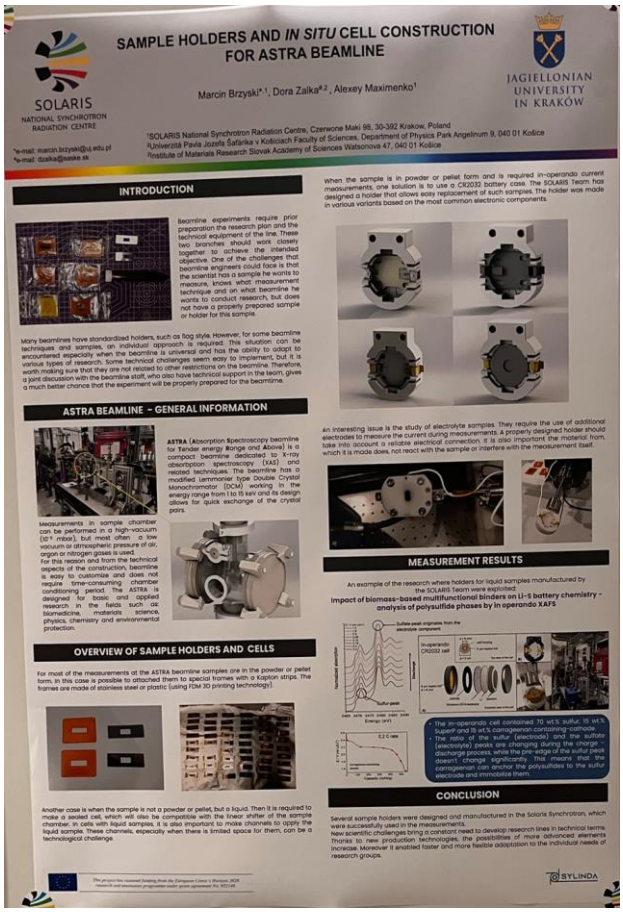

THE SOFT X-RAY SPECTROSCOPY BEAMLINE PHELIX AT THE SOLARIS SYNCHROTRON
SOLARIS
JAGIELLONIAN UNIVERSITY IN KRAKOW
PHELIX: SOFT X-RAY SPECTROSCOPY BEAMLINE
END STATION
X-RAY PHOTOELECTRON SPECTROSCOPY
RESONANT PHOTOEMISSION SPECTROSCOPY
X-RAY ABSORPTION SPECTROSCOPY
ACKNOWLEDGEMENTS







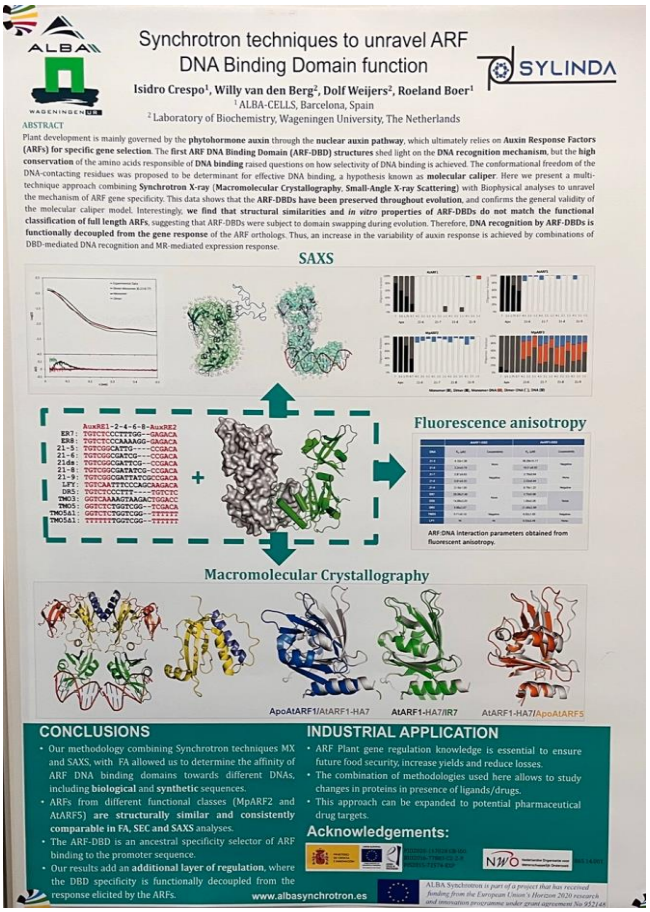


Figure 2: Examples of the posters presented during the poster session of the Sylinda Industry Workshop