

NOMATEN WINTER SCHOOL 2023

Time: 27-30.11.2023

Location: st. Andrzeja Sołtana 7, Science and Technology Park at National Centre for Nuclear Research, Otwock-Swierk, POLAND

DAY 0 – Monday 27.11.2023 – arrival to Warsaw

Suggested hotels: Novotel Warszawa Centrum, Hampton by Hilton Warsaw City Centre, Residence 1898, Puro Hotel Warszawa or Mercure Grand. Pick up will be always organized from the Novotel Hotel.

AGENDA OF THE EVENT

DAY 1 – Tuesday 28.11.2023

07:05 – 07:10 pick up from the hotel (Novotel entrance)

08:00 – 08:30 arrival to NCBJ, security check and entrance procedures (**Remember to bring your passports / ID cards with you!**)

08:30 – 09:00 Registration in the PNT building, **welcome coffee**

Session 1 INTRODUCTIONS – Chairs, Marek Pruszyński and Łukasz Kurpaska (NCBJ)

09:00 – 09:05 Welcome – opening of the school (director Krzysztof Kurek or Marcin Kardas)

09:05 – 09:10 NOMATEN – the EU "teaming project" – framework of the project and general information, Jacek Jagielski

09:10 – 09:15 The CoE NOMATEN – presentation of the centre. Objectives and scientific content of the school, Mikko Alava

09:15 – 09:20 Brief introduction to NCBJ, status of the CoE NOMATEN, Paweł Sobkowicz

09:20 – 09:25 Brief introduction to CEA, partner of the CoE NOMATEN, Christophe Gallé and Frédéric Dollé

09:25 – 09:30 Brief introduction to VTT, partner of the CoE NOMATEN, Maria Oksa

09:30 – 10:15 Invited talk, CEA – Alain Chartier – *Study of irradiated model materials through MD*

10:15 – 11:00 Invited talk, VTT – Wade Karlsen – *High resolution digital image correlation for advancing the crystal plasticity modelling of nuclear reactor materials*

11:00 – 11:20 Coffee break

11:20 – 11:30 RG @CoE NOMATEN: Complexity in functional material, Mikko Alava

11:30 – 11:40 RG @CoE NOMATEN: Materials characterization, Iwona Józwiak

11:40 – 11:50 RG @CoE NOMATEN: Materials structure, informatics and functions, Stefanos Papanikolaou



- 11:50 – 12:00 RG @CoE NOMATEN: Radiopharmaceuticals, Marek Pruszyński
12:00 – 12:10 RG @CoE NOMATEN: Functional properties, Łukasz Kurpaska
12:10 – 12:20 MSCA project & Corrosion Lab build up, Katarzyna Leśniak - Ziólkowska
12:20 – 12:30 General comments and Q&A

12:30 – 13:30 Lunch break and discussions

Small rooms at PNT building (names of the rooms) will be available for internal discussions

Session 2 MATERIALS SCIENCE (nuclear) – Chairs: L. Kurpaska, NCBJ & Ch. Galle, CEA

- 13:30 – 13:50 Elisa Leoni (CEA) – *Gas Generation by Radiolysis: from R&D to Safety Assessment*
13:50 – 14:10 Siddharth Suman (VTT) – *Stress Corrosion Cracking Behaviour of Thermally Aged Alloy 182*
14:10 – 14:30 Sri T. Nori (NOMATEN) – *Impact of high temperature irradiation on mechanical and structural properties of HEA-ODS alloys*
14:30 – 14:50 Agata Sotniczuk (NOMATEN) – *NOMATEN toolbox for detecting corrosion phenomena*
14:50 – 15:10 Oscar Sonzogni (CEA) – *Determination and production of concentrated complex alloys (CCA) CFC/CC resistant to the specific conditions of molten salt nuclear reactors (MSR)*
15:10 – 15:30 Przemysław Kot (NOMATEN) – *Neutron diffraction study of phase stresses in Al/SiCp composite during tensile test*

15:30 – 16:00 Coffee break

- 16:00 – 16:20 Tymofii Khvan (NOMATEN) – *Understanding radiation damage resistance of RAFM steels by experiments and simulations*
16:20 – 16:40 Damian Kalita (NOMATEN) – *Impact of He and Ni-ion irradiation on the performance of bcc-type HEA – WTaTiV case study*
16:40 – 17:00 Tomasz Moscicki (IPPT) – *Theoretical and experimental studies of superhard W-Ti-B coatings deposited using the HiPIMS method*
17:00 – 17:20 Magdalena Gawęda (NOMATEN) – *Amorphous silicon oxycarbide-based protective coatings for nuclear applications*

17:20 – 18:20 PhD 3 min session & snacks – chair FD and LK (mixed PhD students)

18:20 – 18:25 Departure from the NCBJ directly to the Restaurant

19:15 Welcome dinner (location to be announced during the event)



DAY 2 – Wednesday 29.11.2023

07:05 – 07:10 pick up from the hotel (Novotel entrance)

08:00 – 08:30 arrival to NCBJ, security check and entrance procedures (**Remember to bring your passports / ID cards with you!**) / welcome coffee

Session 3 MATERIALS SCIENCE (non-nuclear) – Chairs: Mikko Alava, NCBJ & Maria Oksa, VTT

08:30 – 08:50 Eloi de Villoutreys de Brignac (CEA) – *Phase equilibria and solubility limits in the (Ce, Nd)-Fe-B system for new substituted permanent magnets*

08:50 – 09:10 Mikko Vepsäläinen (VTT) – *Electrochemical synthesis of metal-organic frameworks (MOFs)*

09:10 – 09:30 Javier Dominguez & Amil Aligayev (NOMATEN) – *2D Materials Catalysis: A Multiscale Quantum Chemistry Approach for Hydrogen Production from CH₄, CO₂ Purification, and Gas Splitting Applications*

09:30 – 09:50 Dario Massa (NOMATEN) – *Alloy informatics through Ab-initio Charge Density Profiles*

09:50 – 10:10 Jan Wróbel (WUT) – *DFT based modelling of high entropy alloys*

10:10 – 10:40 Coffee break

10:40 – 11:00 Kamran Karimi (NOMATEN) – *Multi-scale modelling of mechanical deformation in chemically complex alloys: a material informatics approach*

11:00 – 11:20 Maciej Rys (NOMATEN) – *Modelling of size effects in spherical indentation of a single crystal*

11:20 – 11:40 Karol Frydrych (NOMATEN) – *Modelling spherical and Berkovich nanoindentation using the crystal plasticity finite element method*

11:40 – 12:00 Amin Esfandiarpour (NOMATEN) – *Design of Multicomponent Alloys Based on Lattice Distortion, Short-Range Order, and Core Dislocations*

12:00 – 13:00 Lunch break and discussions

Small rooms at PNT building (names of the rooms) will be available for internal discussions

Session 4 RADIOPHARMACEUTICALS SCIENCES – Chairs: M. Pruszyński, NCBJ & F. Dolle, CEA

13:00 – 13:30 Bożena Sikora (Institute of Physics, Polish Academy of Sciences) – *Multifunctional opto-magnetic nanoparticles with upconverting properties - designing, synthesis and applications in cancer diagnostic*

13:30 – 14:00 Joanna Giebułtowicz (Faculty of Pharmacy, Warsaw Medical University) – *Application of metabolomics in pharmacy*

14:00 – 14:20 Izabela Cieszykowska (POLATOM / NCBJ) – *CERAD project and 30 MeV cyclotron for medical isotope production in Poland*



14:20 – 14:40 Karolina Zajdel (NOMATEN / NCBJ) – *Radiolabeling of up-converting nanoparticles for theranostic applications*

14:40 – 15:00 Marcin Zieliński (NOMATEN / NCBJ) – *Differences in the biological response of MCF-7 breast cancer cells and healthy MCF-12A breast cells in conventional and ultra-high dose rate radiation therapy*

15:00 – 15:30 Coffee break

15:30 – 15:50 Fabien Caillé (CEA) – *Late-stage carbon-11 radiolabeling directly from carbon dioxide: from chemistry to drug PET imaging*

15:50 – 16:10 Steve Huvelle (CEA) – *Development of radiochemical tools for PET imaging of HIV infection*

16:10 – 16:30 Marie-Pierre Heck (CEA) – *New multivalent scaffolds for anions and radioanions binding*

16:30 – 18:00 Mix **PhD poster session & snacks** – chair ChG and LK

18:00 – 18:05 Departure from the NCBJ to Warsaw (free time)

DAY 3 – Thursday 30.11.2023

07:05 – 07:10 pick up from the hotel (Novotel entrance)

08:00 – 08:30 arrival to NCBJ, security check and entrance procedures (**Remember to bring your passports / ID cards with you!**) / **welcome coffee**

Visits to labs – organized by: Renata Mikołajczak, person from Reactor, Iwona Jóźwik, Łukasz Kurpaska

08:30 – 09:15 Polfel project status & neutron irradiations in MARIA Reactor

09:15 – 09:30 Organization of the groups – coffee time

09:30 – 12:00 Visits, detailed information will follow

#1 NOMATENs SEM/TEM and XRD facilities (confirmed 1h)

#2 Materials Research Laboratory (confirmed 1h)

12:00 – 13:00 Lunch

13:15 End of the school – closing remarks Jacek Jagielski & Mikko Alava + Łukasz Kurpaska & Marek Pruszyński

13:30 Transportation to the Chopin airport (planned arrival to the airport 14:15)



NOMATEN Workshop

Patent Landscape Analysis for High Entropy Alloys

The Patent Landscape workshop is an exchange of experience in the procedures and possibilities for protecting the intellectual property rights of the NOMATEN Team from VTT, CEA, and NCBJ. The workshop's main objective is to familiarize young Research Staff with the procedures for patenting, preparing patents, and choosing the most favorable options for securing their new scientific solutions following intellectual property protection law. An essential stage of the training will be the presentation of the Patent Landscape tool used by VTT to perform a patentability analysis of a given solution or technology. The tool will be presented based on information concerning new HEA alloys. The workshop will also indicate the possibilities to protect the intellectual property of production processes, research, and development of new compositions of the above-mentioned complex alloys.

Jerome Garcin CEA – part I, Nov. 27th 2023

Magnus Simons VTT, part II. Nov 30th, 2023

Agenda for Part I: online connection via GoTo:

<https://meet.goto.com/NCBJmeetings/patent-landscape-analysis-for-high-entropy-alloys>

10:00 – 12:00 Introduction to the IP Rights by J. Garcin

Agenda for Part II: online connection via GoTo:

<https://meet.goto.com/NCBJmeetings/patent-landscape-analysis-for-high-entropy-alloys>

13:30 – 13:35 Introduction by P. Sobkowicz and M. Simons

13:35 – 14:25 Presentation of Patent landscape by E. Julita

14:25 – 14:40 Discussion

14:40 – 15:00 Break

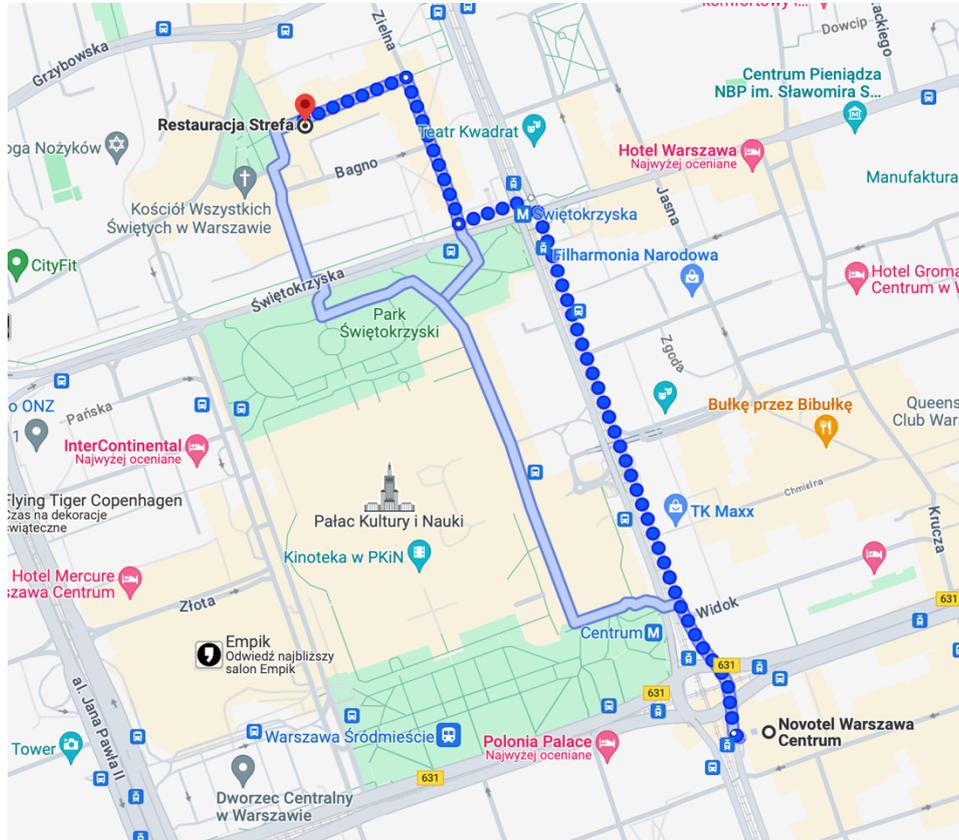
15:00 – 15:40 Group work with by E. Julita, M. Oksa, M. Simons, J. Järvenpää

15:40 – 15:50 Conclusions

16:00 Transportation to the Chopin airport (planned arrival to the airport 16:45)



Dinner will be held at the Strefa Bar&Restaurant, which is located about 15 minutes walking distance from the Novotel Hotel.



Address of the restaurant:
STREFA RESTAURACJA & BAR
PRÓŻNA 9, 00-107 WARSZAWA

People with dietary restrictions should explain this to the waiter during order collection. All dietary restrictions will be taken into account.

