BET-EU

MATERIALS SYNERGY INTEGRATION FOR A BETTER EUROPE

March 2017

ANNOUNCEMENT OF OPEN CALL FOR ATTENDING SUMMER SCHOOL ON SUBSTITUTION AND SUSTAINABILITY

1. Summary of the action

In the frame of BET-EU project (H2020-TWINN-2015, GA. nº692373) it is OPEN A CALL for PhD students connected to the i3N hub and partner institutions, to join the IDS-FunMat_Inno Summer School to be held in FCT-UNL, Caparica – Portugal, organized in the frame of the EIT KIC Raw Materials, during the week of 23rd to 29th of April 2017.

The focus of the school is to give to the students a view of the full value chain of materials usage and applications, from raw materials to recycling, including the Key Materials and Circular Economy.

2. Action description

Scientific area: Advanced Functional Materials, Critical Raw Materials, and Sustainability

Explore advanced functional materials for multi-sectorial applications, with emphasis on:

- Materials science serving multi-sectors: energy, electronics, among others;
- Materials value chain: processing, recyclability.

Requirements: PhD students within i3N and AdvaMTech PhD program whose work plans are related with Substitution of Critical Raw Materials, Sustainability and Recyclability, and Circular Economy. (tentative program attached) Besides that, it supports students abroad coming from European institutions, aiming to establish cross-links between students with different backgrounds and experiences related to the fields above mentioned.

Methods of selection: The jury chaired by Professor Rodrigo Martins, Professor Luís Pereira and other two researchers to be appointed from FCT-UNL and IDS-FunMat_Inno program will evaluate the application's merit based on the following:

1. One page motivation letter which should highlight the role and complementarity of this action within the candidate's ongoing work;
2. Short resume of the PhD work plan;
3. Publications (if applicable).

Moreover, other information considered by the candidates as relevant may also be evaluated.

Deadline and submission: The submission is open from 13/03/2017 to 24/03/2017. The applications must be send by email to **Info@bet-eu.eu**.

The students selected for the school will get support for travel and accommodation.

For further information, please contact Diana Gaspar (dgaspar@uninova.pt) or Info@bet-eu.eu

Tentative programme:

***Sunday, 23 April – Day 1*:**

Afternoon – Arrival

Early evening - Welcome Reception at Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa

Monday, 24 April - Day 2:

Morning - Lectures on Introduction, Life Cycle of Materials, Criticality, Exploration & Mining:

- Introduction to the Spring School - Prof. Rodrigo Martins, Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa (PT)
- Life Cycle of Materials, including introduction to students' project work – Guido Sonnemann, University of Bordeaux (FR)
- Criticality of Materials - Prof. Armin Reller, University of Augsburg/ FhG-WKS (DE)
- Exploration of basic mineral resources – Dr. Carlos Rosa, EDM, Mining country EDM (PT)
- Mining different ore concentrations - Prof. Machado Leite - Porto University/ LNEG (PT)

Afternoon - Course on Project and Risk Management (1)

- Consultant provided by INP Grenoble (FR – tbc)

Early evening – Catering for participation at the Carnation Revolution ceremony events

Tuesday, 25 April - Day 3:

Morning - Course on Project and Risk Management (2)

- Consultant provided by INP Grenoble (FR – tbc)

Afternoon - Course on Project and Risk Management (3)

- Continuation

Early evening - Time for students' project work

- What are the raw materials you work with in your research projects? Where do they come from? Which raw materials you use are critical? What are the bottleneck, the resource strategy and the future perspectives to address the criticality in your research project?

Wednesday, 26 April - Day 4:

Morning – Mine Visit (1)

- Neves Corvo and Aljustrel Mines (150-200 km from Lisbon – 1)
  →Ores of poly-metallic sulphides – copper, tin, …

Afternoon – Mine Visit (2)

- Continuation

Evening – Get together

- IDS-FunMat-INNO students and teacher meet with PhD students of the Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa

Thursday, 27 April - Day 5:

Morning – Recycling Plant Visit

- AmbiGroup plant (Seixal – 15 km from Lisbon)
  → Recycling of main metals, Fe, Al, Zn, …

Afternoon - Lectures on Recycling, Substitution, Sustainability and Circular Economy:

- Rubber sources, applications and recycling - Prof. Roberto Scotti, University Milano-Biccoca (IT)
- Optimization of substitute materials for platinum group metals through multi-scale modeling and machine learning - Prof. Adam Foster, Aalto University (FI- tbc)
- Life Cycle Assessment and Material Flow Analysis for assessing the Sustainability of Recycling and Renewable Energy Options - Prof. Liselotte Schebek, Technical University of Darmstadt/ FhG-IWKS (DE – tbc)
- Towards a low carbon and circular economy, Júlia Seixas, Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa/ DCEA-CENSE and Climate KIC Portugal initiative (PT)

Early evening - Time for students' project work

- What are your learnings from the visits for taking the sources and the end of life options of the raw materials used into account in your research projects? What are the substitution and recycling options for the materials you work with? How can Life Cycle Assessment and Material Flow Analysis support your research to measure progress towards more sustainable materials? In which way can your research contribute to a low carbon and circular economy?

Friday, 28 April - Day 6:

Morning – FCT Labs visit on

- Substitution potentials in Chemistry and Materials Science research

Afternoon – Brainstorming session on PhD projects and closing

- Brainstorming with PhD students facilitated by Prof. Guido Sonnemann, University of Bordeaux (FR) and Dr. Sandra Belboom, University of Liege (BE), aiming at:

⇒ Giving the PhD students the ability to think beyond boundaries by looking at the whole value chain of raw materials and systematically explore and generate new ideas and inspire others in this process and contribute to the further development of those ideas.

⇒ Thinking of ideas on how to include aspects of substitution, design for recycling and circular economy in the PhD projects.

⇒ Using the multiple dimensions of substitution referring to the criticality and toxicity of raw materials in the research work.

⇒ Applying criticality and life cycle sustainability concepts to identify short and long term future consequences of plans and decisions from an integrated scientific, ethical and intergenerational perspective and to merge this into the students' research activities, moving towards a sustainable society.

⇒ Encouraging the PhD students to combine their research experiences with the criticality and life cycle concepts to develop and test new or significantly improved, more sustainable materials.

⇒ Boosting the PhD students' ability to autonomously and systematically transform the learnings made during the workshop about the life cycle of materials into research problems and to motivate colleagues to also support them in their new research ideas.

⇒ Using the Project and Risk Management skills obtained to support the adequate advancement and finalisation of the PhD project.

- Closing of Spring School on Life Cycle of Materials and Project & Risk Management – Dr. Serge Monturet, EIT Raw Materials/ Central CLC Education (EU – tbc)

Evening – IDS-FunMat-INNO Spring School dinner

Saturday, 29 April - Day 7:

Morning – Excursion Sightseeing trip offered by hosts

Afternoon – Departure