

Centre for High Temperature Processes and Sustainable Materials Management

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Abstract

This University of Leuven research Centre (established 1/1/2007) is a co-operation between the research group 'High Temperature Processes and Industrial Ecology' (dep. MTM) and leading materials and recycling companies (Aperam, Umicore and Group Machiels).

Keywords: High temperature processes, metallurgy, refractory materials, residue valorisation, industrial ecology, resource recovery, Enhanced Landfill Mining, interdisciplinarity

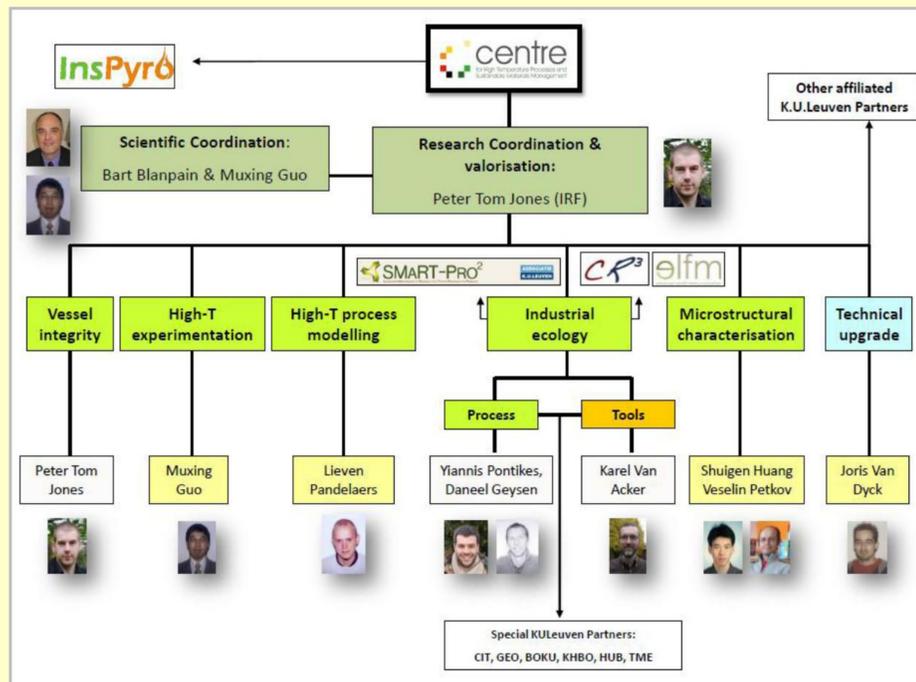
Competence and application domains

Competence domains:

1. Vessel integrity (refractory & freeze lining solutions)
2. High-temperature experimentation (vacuum induction furnace, tube furnaces, CSLM, slag granulation, etc.)
3. High-temperature process modeling
4. Industrial ecology (process related + methodological approach)
5. Microstructural characterisation (FEG EPMA-WDS/EDS, SEM-EDS, e-SEM, FIB, QXRD, XRF, MS, etc.)

Application domains:

1. Ferrous industries
2. Non-ferrous Industries
3. Residue valorisation and building materials



Collaboration

Companies (Centre): Aperam, Umicore, Group Machiels

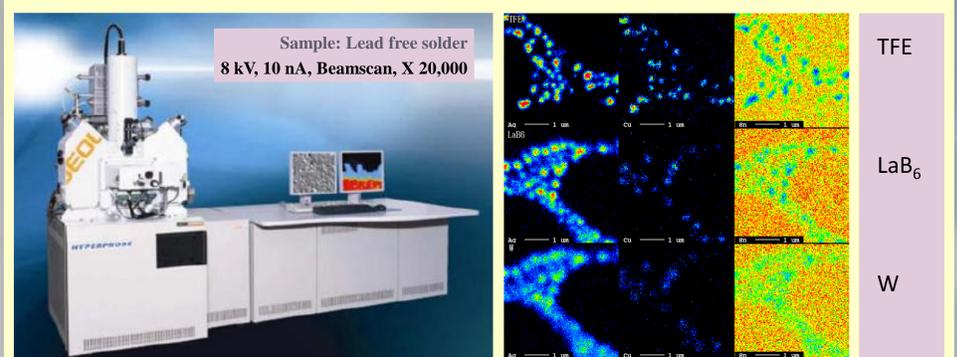
Universities and research Institutes: FEHs, UCL, Queensland, RMIT, Postech, Carnegie-Mellon, Harvard, Pohang University Science and Technology, McGill, USTB, University of Tokyo...

Research Networks: ELMF Research Consortium, CR³ & SMaRT-Pro2
K.U.Leuven Knowledge Platform: www.smartpro2.eu

Mission statement

"To enhance the ecological and economical sustainability of high-temperature processes, using an interdisciplinary and holistic research approach, targeting (mainly) competitive projects, which are problem driven and science-deep."

State of the art equipment: e.g. FEG EPMA Jeol JXA 8500F



Type of projects

- ✓ For the base funding (65 k€/year) two types of research projects are performed. Specific projects include short, targeted projects, feasibility studies, definition and writing of research proposals to outside sponsors. The second type of projects consists of "general work". General projects should strengthen the scientific and technical expertise of the centre. The main goal of the centre is, however, to initiate larger industry/academia competitive research projects.
- ✓ For the competence domain "Industrial Ecology" the centre interacts on a highly intensive way with the "centre for Resource Recovery and Recycling" (CR³) and the SMaRT-Pro² K.U.Leuven Knowledge Platform, who both focus more on pre-competitive projects.

Why join the Centre?

- ✓ Through the partnership with a highly networked academic group, Centre partners are exposed to new ideas, bright students and researchers. The Centre allows access to state-of-the-art modeling software, and experimental and characterisation equipment, providing a higher base level of relevant expertise. It mainly acts as a flywheel for larger industrial projects, that may be government sponsored. It is an excellent training centre for the resource recovery & recycling engineers of the future.
- ✓ **The Centre is open for new members.** More info? Contact Dr. Peter Tom Jones.



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