

# Transnational Access to the PLINIUS infrastructure

## PLINIUS FP6 project n° FP6-036403

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PLINIUS is CEA experimental platform for prototypic corium dedicated to the study of nuclear reactor severe accidents. Corium is the mixture that would be form after melting/dissolution of a reactor core.

This platform is unique in the EU due to:

- The high temperatures in the 2000-3500 K range
- The use of (depleted or natural) uranium oxides
- The significant masses used (up to 60 kg)

Within the PLINIUS FP6 "Specific support action for Transnational Access" (following an FP5 project), Accesses to the following prototypic corium facilities are offered to scientists from European States.

EU-sponsored transnational access to Research Infrastructures.

The objective of this scheme is to sponsor new opportunities for research teams (including individual researchers) to obtain access to individual major research infrastructures they require for their work.

Such infrastructures must be rare in Europe, must provide a world-class service essential for the conduct of top quality research, and must typically have investment or operating costs that are relatively high in relation to those costs in their particular field. The infrastructures must also be able to provide adequate scientific, technical and logistic support to external, particularly first-time, users.

Access is granted to visiting scientists from EU (except France) and Associated Countries (Switzerland, Norway, Iceland, Liechtenstein) so that they can perform experiments in the PLINIUS facility with CEA team.

### Procedure

- 3 Calls for Proposals have been set-up
  - Leaflets
  - Website
- Submission of Proposals by potential visitors
- Selection by the PLINIUS International Panel
- Visit by 1-3 scientist(s) during ~few days -1 month to carry out one experiment
 

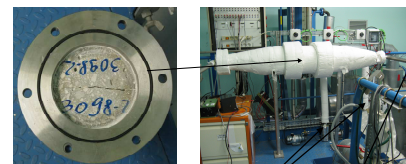
Access is open both to experienced researchers and to students (MSc, PhD, postdocs, ...)
- The EU pays all facility operating costs + travel and expenses.
- Visitors may bring specific apparatus to install in our facility.
- The results must be disseminated in the open literature
- The accesses represent less than 20% of the infrastructure experimental load.

### Access to COLIMA For a SARNET group from

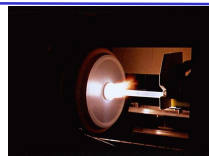
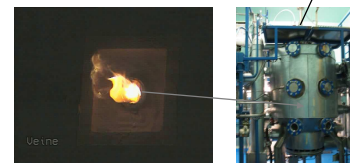
- Demokritos Institute (GR)
- CESIRicerca (IT)
- CIEMAT (ES)

Retention of prototypical aerosols through concrete cracks

- Fabrication of aerosol from a molten pool with prototypic corium and fission product composition
- Flow through a fabricated concrete crack
- Sampling up- and down-stream of the concrete sample.



7-stage impactors

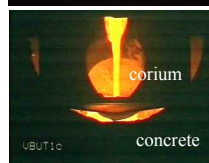


### Access to VULCANO

- Transferred arc plasma torch furnace 200 kW

Access granted to VTT (Finland)  
To be performed in 2009

Study of the interaction of corium with the EPR reactor pit  $Fe_2O_3-SiO_2$  concrete

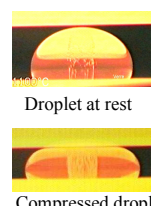


### VITI

Open to accesses by European research groups

Call for Proposal: June 30 2009

Fore more details : <http://www.plinius.eu>



- VITI is a multipurpose induction furnace (left picture) to study the behaviour of small masses (0.1 to 50 g) of prototypical corium up to 2500-3000 K

Contact us to see how it can be adapted to your experimental needs.

[Crucible or Pellet studies \(second picture\)](#)

- Induction Furnace for the study of melt behavior in crucibles or of pellet degradation
- Use of refractory hafnia tube enables the use of oxidizing (air, steam, etc..) atmosphere.

[Contactless experiments \(right pictures\)](#)

- Aerodynamic levitation of droplets
- Density, Viscosity & Surface Tension of melts
- Measurement of thermodynamic transitions

