

**U.S. DEPARTMENT OF ENERGY  
INTERNATIONAL NUCLEAR ENERGY RESEARCH INITIATIVE  
DOE/France**

## ABSTRACT

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### Assessment of Existing Physics Experiments Relevant to VHTR Designs

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**Project Number:** 2004-005-F

**Principal Investigator (France):** R. Jacqmin,  
Commissariat à l'Energie Atomique (CEA)

**Project Start Date:** October 2004

**Project End Date:** October 2007

**Collaborator:** Idaho National Laboratory (INL)  
currently INEEL

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A program element of the Gen IV Design and Evaluation Methods area is aimed at identifying system design and safety analysis needs and advancing analysis capabilities to meet these needs. Important activities that have been identified include the qualification of analysis methodologies and tools, and the identification of experiments and benchmark tests that could be used for this purpose. It was additionally recommended to leverage efforts through international collaborations and participation in ongoing international activities.

This project will identify and assess experimental data and benchmark tests applicable to the qualification of Generation IV system design and analysis physics tools. During FY 2004, the team will interface with U.S. and international groups to identify and assess existing data that could be used for the qualification and quality assurance of computer codes and databases for reactor physics analysis of the VHTR. This activity is expected to support subsequent efforts (in FY 2005 and beyond) to document the benchmark specifications and measured results in a standard format for use in VHTR software quality assurance efforts. That effort will include:

- ◆ Evaluation of the adequacy of existing critical experiments and nuclear data
- ◆ Definition of target accuracies for pertinent core parameters
- ◆ Sensitivity studies for assessing relevance of experiments to VHTR
- ◆ Identification of additional integral experiments and/or nuclear data evaluation and measurements that are required
- ◆ Joint detailed analysis of selected physics experiment(s)

The U.S. activities for this effort will be done under Work Packages A0802J01 and I0802J01 of Gen IV Design and Evaluation Methods.

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