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## **Advanced Computing and the GRID for Research (AC&GRID)**

# **“The Towers of Hanoi”**

## **Asian School Project in Vietnam**

**Title:** Advanced Computing and the GRID for Research (AC&GRID)  
**Date:** Fall 2007  
**Duration:** 1-2 week(s)  
**Venue:** Hanoi (Vietnam)

### **Summary**

This school is organized by the French CNRS (Centre National de la Recherche Scientifique), the Vietnamese CNST (Centre National des Sciences et des Technologies), VAST, ... and other participating country organizations. It is held under the sponsorship of the French Embassies in Asia (?<sup>1</sup>), the “Réseau STIC-ASIE”(?): a French cooperation program developing ICT cooperation in Asia supported by the Ministry of Foreign affairs, CNRS/DREI-DSI(?), INRIA (?),....

Basic research relies nowadays on the most advanced technologies and the actual contribution to the progress of science is strongly linked to the technological expertise of the scientific staff. Technological training and teaching of practical skills is therefore mandatory in the researchers’ curriculum.

The school addresses one of the most important technologies needed to undertake any modern research activities, namely:

*Advanced Computing Technologies and the GRID for Scientific Research.*

**HEP** (High Energy Physics) that is both a strong consumer and developer of computing technologies (WEB, GRID, Symbolic languages, data analysis,...) together with **ICT** will join to provide a broad and high quality teaching programme.

Basic research has become international. Most of the major programs whether in a competitive or a cooperative manner are developed in this global framework. The school

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<sup>1</sup> ? question marks indicate a strong interest although no formal decision have been yet taken

is therefore open to student and researchers from any participating Asian countries. The lectures will be given by French and Asian computing science experts deeply involved in basic research.

As the school will gather researchers from various fields and various skills, it will give a unique opportunity **to initiate and foster collaborations** with or between Asian countries on the current and coming major global research projects in: nuclear, high-energy physics and astrophysics, genomics and medical sciences, material sciences and nanotechnologies, earth sciences, climate evolution and disaster prediction, ...

As a follow-up, **fellowships** may be awarded by the participating countries to students joining international collaborations.

This school invites other computing related organizations and companies to sponsor this event. An exhibition can also be organized offering a unique showroom for the products, technologies or achievements of the participants and sponsors.

## Programme

The final programme will be set up by the International organizing committee yet to be formed. Here follows some suggestions:

1. First Day will be **the inaugural day**: This kick-off start day will include: keynote talks, national policy and project talks, company talks, VIP meetings, Cocktail
2. An **product showroom** can be organized to allow leading computing related companies in Vietnam, France and other Asian countries to show and demonstrate their products. They will also sponsor the school.
3. **Scientific Program** (*Talks will be given by HEP computing and/or ITC experts*)
  1. Distributed Computing
    - a. GRID technology
      - i. Concept
      - ii. Middleware Tools
      - iii. Demos and exercises
    - b. Public or “volunteer” computing (BOINC)
  2. Parallel computing
    - a. Hardware and Systems
    - b. MPI programming
  3. Data Analysis methods and tools
    - a. Artificial Intelligence tools and methods
      - i. Neural nets
      - ii. Genetic, evolution Algorithms
    - b. Pattern recognitions, Minimization and fits
    - c. Data Analysis and the “Root” system
    - d. Multivariate Analysis
  4. Experimental Simulation and high precision computing
    - a. Geant 4
  5. Symbolic Computing
    - a. Maple, Form

6. Embedded and real-time Computing
  - a. Robotics
  - b. Data Acquisition

## **Participating Countries**

Opened to Asian Countries, this school relies on the strong and sustained contribution of the participating countries government, funding agencies and foundations for supporting:

- domestic student and researchers attending the school.
- domestic experts and professors teaching at the school.
- the basic school organization

Contacts with those countries are in progress, feel free to contact us for more information.

## **Contacts:**

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