

Academic Research Network for  
High Performance Computing (HPC-net)  
<http://hpcnet.upatras.gr>

University of Patras

## Invited Lecture

**Lecture by:** prof. Mateo Valero

BarcelonaTech (UPC)

Barcelona Supercomputing Center (BSC)

**Title:** Towards Exaflop Supercomputers

**Place** Conference Center of the Univ. of Patras  
Room II-9, 1st floor

**Date** Friday, 18 February, 2011

**Time** 13:00

## Abstract

Having recently surpassed the Petascale barrier, supercomputers designers and users are now facing the next challenge. A thousand fold performance increase that if the improvement rate of the last decades continues will be reached around 2018.

Being power the main constraint and facing many hardware challenges, software is probably the biggest one. Worldwide and cooperative initiatives are being started to perform research facing such objective.

The Barcelona Supercomputing Center is involved in such initiatives and carries out the MareIncognito research project aiming at developing some of the technologies that we consider will be of key relevance on the way to Exascale.

The talk will briefly discuss relevant issues, foreseen architectures and software approaches that will have to be developed in order to successfully install and operate such machines.

## Bio

Mateo Valero, <http://personals.ac.upc.edu/mateo/>, is a professor in the Computer Architecture Department at UPC, in Barcelona. His research interests focuses

on high performance architectures. He has published approximately 500 papers, has served in the organization of more than 300 International Conferences and he has given more than 300 invited talks. He is the director of the Barcelona Supercomputing Centre, the National Centre of Supercomputing in Spain.

Dr. Valero has been honoured with several awards. Among them, the Eckert-Mauchly Award, by the IEEE and the ACM, the IEEE Harry Goode, two Spanish National awards, the “Julio Rey Pastor” to recognize research on IT technologies and the “Leonardo Torres Quevedo” to recognize research in Engineering, by the Spanish Ministry of Science and Technology, presented by the King of Spain and the “King Jaime I” in research by the Generalitat Valenciana presented by the Queen of Spain. He has been named Honorary Doctor by the University of Chalmers, by the University of Belgrade, by the Universities of Las Palmas de Gran Canarias and Zaragoza in Spain and by the University of Veracruz in Mexico. “Hall of the Fame” selected as one of the 25 most influents European researchers in IT during the period 1983-2008.

In December 1994, Professor Valero became a founding member of the Royal Spanish Academy of Engineering. In 2005 he was elected Correspondant Academic of the Spanish Royal Academy of Science and in 2006, member of the Royal Spanish Academy of Doctors and member of the “Academia Europaea”, the “Academy of Europe”. He is a Fellow of the IEEE, Fellow of the ACM and an Intel Distinguished Research Fellow. In 1998 he won a “Favourite Son” Award of his home town, Alfamén (Zaragoza) and in 2006, his native town of Alfamén named their Public College after him.