

## **Parallel Programming for Resiliency and Energy Efficiency in HPC**

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Facultad de Informática

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*Entrada libre hasta completar el aforo*

### **Resumen:**

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The quest for higher energy-efficiency in future HPC systems is strongly connected with the need for enhanced resilience as resilience techniques have a non-trivial energy cost. In addition, ongoing efforts to further improve the energy-efficiency at the device level (such as operating hardware below its nominal margins or replacing DDR technology with non-volatile memory technologies) may compromise hardware reliability, asking for solutions in the software. In this talk we will review the interactions between reliability and energy efficiency in HPC linear algebra libraries, by discussing a collection of techniques such as software fault tolerance, approximate computing, asymmetry-aware scheduling, and thread-level malleability.

### **Sobre Enrique S. Quintana-Ortí:**

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Enrique S. Quintana Orti received his Ph.D. degree from the UPV, in Valencia, Spain, in 1996. Currently, he is full professor in Computer Architecture at Universidad Jaime I of Castellon, Spain. His research is focused in high performance computing, having published 300+ research papers. He has also served on the program committees for 50+ international Conferences in the field of high performance computing, and is currently Subject Area Editor for Parallel Computing. In the last 5 years, he has also participated in two H2020 EU projects, on Energy Efficiency for Numerical Libraries and Approximate Computing. Enrique received the 2008 NVIDIA Professor Partnership Award as well as two Awards from NASA (National Aeronautics and Space Administration) for his technical contributions in the area of resilient linear algebra libraries.