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# Preparing Applications for the New Era of Computing

*Thursday, 22 March 2018 09:00 (45 minutes)*

We are entering a new Era of computing with large scale HPC systems soon reaching performance levels of Exaflops and large scale cloud infrastructures providing unprecedented levels of compute power. These greatly enhanced computational capabilities will enable new science, pushing both the boundaries of existing computational science and enhancing new domains like artificial intelligence and high performance data analytics.

These enormous advances are being enabled by new hardware technologies, particularly changing CPU and memory design. Unfortunately, these changes are not transparent to applications and call for revised algorithms and implementations; appropriate programming environments, workflows, and data management systems; and a deep understanding of the hardware developments to come.

Dedicated effort have started in Europe to address these issues and in this talk we review some of the key challenges and present Europe's approach to them. Highlights of some selected projects, like the BioExcel Centre of Excellence for Computational Biomolecular Research will also be presented.

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**Session Classification:** Keynote Session