Towards data intensive aware programming models for Exascale systems

(Technical Lecture track)

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***Abstract**: Extreme Data is an incarnation of Big Data concept distinguished by the massive amounts of data that must be queried, communicated and analyzed in (near) real-time by using a very large number of memory/storage elements and Exascale computing systems. Immediate examples are the scientific data produced at a rate of hundreds of gigabits-per-second that must be stored, filtered and analyzed, the millions of images per day that must be mined (analyzed) in parallel, the one billion of social data posts queried in real-time on an in-memory components database. Traditional disks or commercial storage cannot handle nowadays the extreme scale of such application data. The ASPIDE project will contribute with the definition of a new programming paradigms, APIs, runtime tools and methodologies for expressing data-intensive tasks on Exascale systems, which can pave the way for the exploitation of massive parallelism over a simplified model of the system architecture, promoting high performance and efficiency, and offering powerful operations and mechanisms for processing extreme data sources at high speed and/or real-time.*

Bio: He received a PhD in Computer Science from University Carlos III in 2010. He has participated in several projects with researchers from various high performance research institutions such as HLRS (funded by HPC-Europe program), DKRZ, and Argonne National Laboratory. He is currently involved in various projects in topics such as parallel I/O, image processing, heterogeneous computing, and accelerators for high-performance platforms. He has been involved in six research projects funded by the European Union (such as Repara, Rephrase and ASPIDE). He currently has more than 80 international publications in journal and conference papers.