Contribution ID: **143**　　　　　　　　　　　　　　　　　　Type: **Keynote**

Keynote 6: HPC – the Point of the Spear

Wednesday, 2 December 2020 16:30 (1 hour)

At no time in the seven decades-long history of the field of supercomputing has there been a year like this. 2020 has been at the edge of a world-wide disaster with HPC being brought to the battle against Covid-19 in a planetary response unmatched in its history. At this moment of international cooperation in our field to vanquish a pandemic that has killed more than a million innocent victims, the same technology is on the threshold of the unprecedented achievement of 1 Exaflops (Rmax) performance as measured for more than two dozen years by the Linpack benchmark. A capability of a million million million floating point operations per second has stretched the creativity and technologies to its limits as the application of nano-scale semiconductor fabrication processes both will deliver Exascale computing even as it demands revolutionary innovations at the end of Moore's Law. This presentation, unique in the annals of the CHPC conference due to its virtual form, will examine the dramatic role that HPC is playing in combatting this pandemic as it approaches the era of Exascale and faces the daunting challenges and opportunities to wielding revolutionary concepts, still in their inchoate stages of development, to anticipate the immediate singularity and future directions of supercomputing.

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Session Classification:　Keynote

Track Classification:　HPC Techniques and Computer Science