

Contributed Talk

Splinter Computation

MAGNETICUM: THE LARGEST COSMOLOGICAL HYDRODYNAMICAL  
SIMULATIONS

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The Magneticum simulations allows to study halos across a wide range of mass and environments, from massive galaxy cluster down to normal galaxies. It includes a detailed treatment of the chemo-energetic feedback from the stellar component and its evolution as well as feedback from the evolution of super massive black holes. The largest of the simulations follows a record number of  $2 \times 4536^3$  particles and was performed using the complete Phase II of SuperMUC at LRZ. I will report on optimization strategies which allowed us to perform such simulation on 172032 tasks utilizing 155 TB of main memory for a single run. I will also describe the progress and need for developments towards next generation of HPC hardware.