[구CO-01] String Cosmology in D3-brane and Anti-D3-brane Pair

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In this talk we will introduce a string cosmology model named D-brane inflation. Specifically, we consider the system of separated D3-brane and anti-D3-brane pair, and study inflation when they approach and collide each other. As string backgrounds, we use both the flat spacetime and the Klebanov-Strassler background with a warp factor and various fluxes.

[구CO-02] Cosmological N-body simulation powered by the Graphics Processing Unit -- I. A progressive report

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Using the modern graphics processing unit (GPU), we have achieved a several factor of the performance enhancement in the cosmological simulations. As a GPU test server, we have built two PC boxes, each of which has two NVIDIA GeForce 8800 GTX graphic cards. We modify the tree-force correction part in the PMTree code with the CUDA (Compute Unified Device Architecture) which is provided by the NVIDIA to drive the streaming processors. The forces measured by the direct N-body and Tree methods in the GPU are shown to be similar to those in the CPU within the limit of a single precision. And the performance speed-up's are an order of magnitude better than the CPU version. A better performance will be expected if the CUDA is applied to the other part of the code, for example, PM force measurement, FFT, and the parallel sorting.