



Contribution ID: 168

Type: Poster

On low energy nuclear activities in EGEE

Describe the scientific/technical community and the scientific/technical activity using (planning to use) the EGEE infrastructure. A high-level description is needed (neither a detailed specialist report nor a list of references).

High accuracy nuclear data is a strong requirement for reliable, safe and cost effective modern nuclear facilities and the only method for obtaining all the required quantities unitary is through nuclear data evaluations by nuclear model calculations. Recent nuclear codes developments employ microscopical approaches combined with large-scale global calculations that are inherently computational intensive and thus being suited for Grid environment.

Report on the experience (or the proposed activity). It would be very important to mention key services which are essential for the success of your activity on the EGEE infrastructure.

The outcome was firsthand the reduced computational time but also served as a practical experience of porting low-energy computer codes to Grids.

The proven success should stimulate the adoption of Grid technologies for other low energy nuclear activities, e.g. uncertainty estimation, transport and reactor design computer codes, and therefore an eventual Virtual Organization to support such activities in EGEE would prove suitable.

Describe the added value of the Grid for the scientific/technical activity you (plan to) do on the Grid. This should include the scale of the activity and of the potential user community and the relevance for other scientific or business applications

A modified version of SCAT-2 nuclear code that searches 'best fit' nuclear optical model parameters - SCAT2MIN - was ported to the grid environment using the EGEE Fusion VO resources. This work has showed that it is rather easy to integrate low-energy nuclear computer codes into modern computational environments and perform large scale computations with good performance. There are still some issues regarding the success rate of the jobs, a solution investigated being the use of DIANE framework.

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Track Classification: Demo and Poster session