SSP Proposal 2001: Testing + Benchmarking of the Parallel GW Space code

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Description of the proposed project

As part of the High Performance Computing Initiative, Dr Breitmoser has been developing a parallel version of the GW Space code for the Electronic Structures consortium. Whilst the parallel version of this code is under construction, we anticipate a working version will be available by the time of the SSP. It is essential to the success of this project that the newly developed parallel version be tested and benchmarked on certain parallel systems, especially the Cray T3E. This would be an ideal project for an SSP student, giving experience of running and benchmarking on parallel systems.

10-week workplan

- **week 1** Courses
- **week 2,3** Familiarisation with the code
- **weeks 4,5,6** Testing the code on a range of systems and processes.
- **weeks 7,8,9** Benchmarking the code on a range of processes and systems.
- **weeks 10** Writing up

Skills required of the student

Fortran experience is essential, specific fortran 90 experience is desirable.

Computing resources required

Access to the Cray T3E in Edinburgh and in Manchester (this can be obtained under the HPCI grant).

EPCC training courses

As the parallel code is written in MPI, the following courses would be desirable: *Introduction to High Performance Computing* and *Writing Message-Passing Parallel Programs with MPI.*