

CTFD Grant Proposal for Professional Development in Teaching (PMYR)

Seminar Series on High Performance Computing in Computational Science and Engineering

Design and Goals of the Project

High-Performance Computing (HPC) plays an increasingly integrated role in fundamental and applied research as a primary tool for scientific discovery and design. The new Massachusetts Green High Performance Computing Center (MGHPCC) at Holyoke, MA, which is a collaboration of Boston University, Harvard, MIT, Northeastern and UMass, the state government and private industry, provides a unique opportunity to focus efforts at UMass in HPC, both in research and education.

In order to take advantage of this new opportunity and related computational capabilities coming in line, several faculty members from across campus including Katsoulakis, created in the Fall of 2012 the new "High Performance Computing in Computational Science and Engineering Seminar". The goal of this seminar series is to bring together faculty and students at both the undergraduate and graduate levels, across campus and for whom computational methods and high performance computing play a critical role in their scientific interests and their research. The website of the seminar and a list of speakers and abstracts of talks are available here:

http://www.math.umass.edu/~johnston/HPC_IN_CSE/HPC_in_CSE.html

In the first semester of its existence, the seminar is extremely successful drawing a large number of participants from many departments and across Colleges. What is also notable is the large number of participating students (typically more than 30 in each talk), with a similarly interdisciplinary mixture of backgrounds. To date the speakers are primarily internal, however there were several distinguished external lecturers. The funding of the latter was provided in an *ad hoc* fashion by some of the "instigators" of the seminar series and/or their respective departments.

With this proposal Katsoulakis requests the amount of \$3,000 to support external speakers for this seminar series for the calendar year 2013. The **impact** of this request will be three-fold:

- First, it will solidify the promising start of the seminar series, towards creating a community of researchers who although they are not residing in the same Department or College, however they face similar challenges to develop HPC tools for their research as well as for broader use.
- Second, a sustained seminar with exciting speakers will create a focal point for the interaction of students with both their peers and faculty across fields. This experience can vastly enhance their direct or indirect mentoring and provide a fresh perspective from different points of view.

- Third, the exposure to cutting-edge expertise in HPC of our students at all levels, will without a doubt be a great asset both in their work as students, as well as prepare them to enter the workforce in an increasingly knowledge-based economy.

Budget and Timeline

We budget 5 external speakers with an average cost of \$600 per speaker. Clearly some the speakers from the North East will cost less, while speakers from more afar will have a higher cost. The 5 external speakers will be invited within the calendar year of 2013.