

Dec. 8, 2005

Dr. Heidi Alvarez
Associate Director, CIARA/AMPATH
PC 307
Florida International University
Miami, FL 33199

Dear Dr. Alvarez,

I am writing in support of Mr. Cassian D'Cunha's application for a Cyberbridges Fellowship. Mr. D'Cunha is working on his Ph.D. in Chemistry with me as advisor. Mr. D'Cunha is a very capable student and has a proven work record. While earning a master's degree in computer science with me as co-advisor, Mr. D'Cunha performed work that contributed to three publications. He then decided to pursue a Ph.D. in chemistry, specializing in computational applications in biophysical chemistry.

The research project Mr. D'Cunha is pursuing, the catalytic mechanism of chloroperoxidase (CPO), is a challenging project with possible practical impact on synthesis of pharmaceuticals. CPO is a target for biochemical engineering to create an efficient biological chiral catalyst. The computational resources required are considerable and are the topic of the proposed Cyberbridges project. Needed is appropriate configuring of a computer cluster and optimizing of software for parallel calculations on CPO. The project is well designed and feasible. Clear results are obtainable with reference to benchmark serial calculations, some of which have already been performed.

Mr. D'Cunha's background in computer science and chemistry positions him well to undertake this project. The technological expertise for reconfiguring the computer cluster and optimizing the software is not currently available in my group, and so the interaction with faculty in Computer Science will be invaluable. The two mini-courses planned for the spring (high-performance networking and grid-computing) are precisely the topics that Mr. D'Cunha needs to learn for this project.

In closing, Cyberbridges and Mr. D'Cunha's project are an excellent fit. They provide just the kind of interaction with computer science that Mr. D'Cunha and I need to make progress in our chemical research. Mr. D'Cunha is a capable student with a good research track record, so the prospects for achieving the project's goals are excellent. I strongly endorse Mr. D'Cunha's proposal. If further information would be helpful, do not hesitate to contact me.

Sincerely,
David Chatfield