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Proposal title: Collaboration between Students of SDSU and Tec de Monterrey for Developing Software Tools

Country visited: Mexico

Institution visited: Instituto Tecnologico de Estudios Superiores de Monterrey, Mexico City Campus (ITESM-DF)

Dates of travel: May 2011

Number of student participants: 0 SDSU, 15 students at ITESM-DF participated in discussions with Dr. Battacharjee

Previous IP proposals submitted and grants awarded: None

Have all required reports been submitted? Yes

Other funding for this activity available/applied for: An NSF grant is indirectly supporting the activities mentioned in the project.

Proposal Abstract:
At the SDSU Thermodynamics Laboratory, we have been developing web based learning tools for thermodynamics, which are being used by a huge number of universities around the world primarily for thermodynamics education. Called The Expert System for Thermodynamics (www.thermofluids.net) or TEST, it offers smart thermodynamic tables for property evaluation and analysis tools for mass, energy, entropy, and energy analysis
of open and closed systems, IC engines, gas and vapor power cycles, refrigeration, HVAC, combustion, chemical equilibrium, and gas dynamics.

Profs. Faddeeva and Bravo have been using TEST for quite some time in their classroom and students of Mechanical Engineering at SDSU and at Tec de Monterrey are very familiar with the animations, applets, and rich internet applications used in the thermodynamics classroom.

The goal of this trip is to explore collaboration between students of Tec de Monterrey and SDSU. During the summer of 2011 students from these two campuses will jointly develop new analysis and visualization tools. The collaboration will take place over the internet, video and telephone conferences and will be supervised by Prof. Faddeeva and myself.

A successful outcome of this collaboration will be joint educational research proposal, and possible exchange of students between the two universities.

Visit to Tech de Monterrey, Mexico City
Of all the countries in Latin America, Mexico is the destination of most number of international exchange students in study abroad programs every year. The Instituto Tecnologico de Estudios Superiores de Monterrey, also known as Tec de Monterrey, is one of the largest private university systems with 31 campuses throughout Mexico.

I was invited by the Mechanical Engineering Department because they use a courseware we created at SDSU (www.thermofluids.net). I was warmly received by the faculty and students and my stay was very productive. I met with the faculty and discussed different areas of cooperation and then had a one hour long question and answer session with the students. Various areas of cooperation between students at SDSU and Tech were discussed in terms of educational tool development.

Tech de Monterrey has an excellent international program with collaboration with major universities throughout the world. Students typically spend the summer there with 4 week or 8 week courses on various topics. I met with the director of their international program, who is very interested to start an exchange program with SDSU. More information about their program can be found in the following web page: http://www.ccm.itesm.mx/internacional/programs.html.

After my visit, a faculty from the University, Prof. Sofia Feddeeva, has come to spend her sabbatical year at SDSU. She has been in touch with the international outreach of the College of engineering and planning to organize a trip with some of our students to Mexico.
Lunch with some of the faculty in the campus cafeteria

Discussion with students