

November 2011

Dear Mr. and Mrs. MacDonald,

Hello. My name is Thomas Parise and I am a recipient of the Daniel W. MacDonald Memorial Fellowship Fund. Without your support, I would be unable to experience the wonderful educational opportunities of Stanford. Thank you so much. I am in the fifth quarter of my Master's program. I am currently working toward a Master's of Science in Mechanical Engineering; however, I plan on staying for a Ph.D.


Currently, I am taking Applied Quantum Mechanics, Experimental Methods in Fluid Mechanics, and Introduction to the Physics of Energy. In my time at Stanford, I have performed research in two laboratories: Dr. Mitchell's and Dr. Goodson's. In Dr. Mitchell's lab I investigated the effect of different additives on the combustion of coal. The intent was to see if the presence of certain chemicals in coal when the coal was heated up would cause more carbon monoxide and hydrogen gas to be released from the coal, which in turn could be burned to generate electricity. Unfortunately, the experiments were inconclusive and further investigation is needed.

In Dr. Goodson's lab, I developed a model for a device to generate electricity from the warm exhaust of automobiles. The device takes advantage of thermoelectric materials, which can generate electricity from heat flows or conversely use electricity to generate heat flows. These materials can be used to generate electricity, as from automobile exhaust, or heat or cool systems, as is currently common in many computers. I also assisted in characterizing materials to join these thermoelectric materials with the surrounding support structures in manners that would maximize the electricity the device could generate.

Fortunately, I still have free time outside research and classes. My favorite pastime is running and the weather and landscape here is wonderful for it. A few weeks ago, I was able to compete in my seventh marathon, the Santa Barbara International Marathon. Though I wasn't feeling well going into the race, I was able to run faster than I ever had in a marathon. I have been training with the running club here at Stanford and have benefited immensely from it. Since I am from the East Coast, I am trying to make the most of my experience out here in California. I have been to several national parks, including Yosemite and Sequoia, and have taken trips to several California landmarks, such as Big Sur and Alcatraz.

Once again, thank you so much for your financial support, without which I would not be able to enjoy the wonders of Stanford.

Gratefully,



Thomas Parise

