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Gloyer Taylor Laboratories

112 Mitchell Blvd

Tullahoma TN 37388

Dear Committee,

I am applying for the Aerospace/Mechanical Engineer III position. I am currently a postdoctoral researcher working at AFRL-Edwards Air Force Base. The postdoc position will be ending soon and I am now seeking a full time position. The position description aligns with my background and some of these experiences are shared in the paragraphs below.

For the last year and a half I have worked at AFRL developing an experimental facility to perform interfacial tension and raman spectroscopy measurements in alkane-gas (with CO2 or N2) mixtures at elevated pressures (above 900psi). The goal is to understand the behavior of fuels near their critical conditions. I have gained experience leading and expanding my knowledge by working with scientist within AFRL and collaborative projects with research centers, i.e. NASA - Glenn Research Center Combustion Physics and Reacting Processes Branch. I work daily with drafters and mechanical engineering technicians; currently, I am actively involved in the design of an inconel high pressure cell to withstand elevated pressures (rated to 3000 psi) and high temperatures ().

I received my doctoral degree from the University of California, Irvine in the area of combustion. The work focused on understanding the chemical and thermal effects that water has when it is introduced as a diluent into the fuel side by designing a well controlled system (using a counterflow burner). I implemented and developed experimental diagnostics, i.e. thin filament pyrometry, to measure flame temperature and planar laser induced fluorescence for OH measurements. The experimental results were compared with chemical kinetic simulations (using Chemkin Pro 1-D) and the goal was to understand the role that water had on specific reactions.

In addition, I have also lead and mentored projects for domestic and international master and bachelor students. In my CV you will also find other teaching and leadership activities that I was actively involved at UCI.

Thank you for your consideration. Please feel free to email me at **padilla.re@gmail.com** or contact me at **661-6745367** if you need additional information or have any questions. I look forward to speaking with you.

Sincerely,

Rosa Padilla