**Statement of Research Interests**

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**Introduction**

I am writing about the opportunity to join the University of Victoria Ocean Physics Lab. I have been looking into both the Physics and Earth and Ocean Sciences programs at the University of Victoria and was excited to see this opportunity. My long term career objective is to gain my PhD and work as a tenure track Professor engaging in physical oceanography research and instruction. It is my dream to become a Professor and I cannot imagine a more rewarding career. My background at Oregon State University includes completing two master’s degrees. During this time I have worked as a research assistant, instructor and teaching assistant.

There are a number of reasons I am drawn to the Ocean Physics Lab and your research. The first is your background and dual appointment in the School of Earth and Ocean Sciences and the Department of Physics and Astronomy. I am confident your background would align well with my previous academic experience and my future goals of gaining a position in a Physics or Oceanography Department. The second reason is that the path to becoming a professor is very competitive and the expectations that you put forth for your graduate students align well with a successful academic career. Your emphasis on becoming an “expert” in your immediate field and the ability to think critically and engage as an independent researcher are very important to me.

My goals as a doctoral candidate include actively engaging in research, attending and presenting at conferences, grant writing and teaching. As you look over my background you will see it is a little unique. I am aware that there will be a lot to learn as I gain my doctorate but I am excited for the opportunity.

**Current Research Interests**

My overarching interests for my career is that my research will benefit people and help to preserve the ecosystem in which we live. There are a lot of pressing problems facing our environment and I hope to use computational, technological and statistical methods to help work on these problems with other scientists and community members. My particular interests involve utilizing numerical modeling and data analysis to better understand physical oceanography processes. My master’s thesis in the Department of Nuclear Engineering and Radiation Health Physics at Oregon State University involved designing digital software for radiation detection and measurement. This really began my passion for the power of utilizing computational methods to work with and simplify large data sets and to solve complex and non-linear systems.

The numerical and observational projects you list are all appealing to me. The project looking into ray tracing through non-canonical wave fields was particularly interesting and I think that this could utilize my background working with electromagnetic waves. My research focused on high energy waves exhibiting wave particle duality, but I think that there would be some overlap of the physics and methodologies used to think about these phenomenon. I also was interested in potentially building upon Wendy Callendar’s work. The other area that stood out would be building upon the observational projects with the datasets you have. The data set relating to internal wave and turbulence from the continental shelf stood out as one that might be particularly interesting to work with.

I am currently meeting with faculty from the OSU Physical Oceanography Department and hope to get further up to speed on research. If I was able to work with you I would spend the summer reading research from your group and the Oceanography Department. I would also speak to the faculty I know at Oregon State University to put together a reading list for this summer so I could have a strong foundation to engage in the projects you list and bring some original research question ideas with me.

In the future I am interested in joining an Oceanography Department and hopefully being able to use my background in oceanography, physics and entrepreneurship to work on wave energy. The Northwest National Marine Renewable Energy Center recently received a $40 million grant and I know many of the faculty involved in this.

**A Brief Statement About my Academic Path**

My background is a little unique but I feel it has prepared me for a successful career in academia. I would be happy to discuss this journey in person with you as I have spoken to a number of faculty in the College of Earth Ocean and Atmospheric Sciences who have helped me narrow down my research goals and interests.