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Faculty Search Committee
Department of Physics
Texas Tech University
Box 41051
Lubbock, TX 79409
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October 27, 2018

Dear Members of the Search Committee,

With this letter, please find my application materials for the advertised Assistant Professor position in experimental condensed matter physics. I am enthusiastic about the prospect of contributing to research and teaching at Texas Tech University. I believe my scientific interests and abilities will make a good addition to your department. I have a Ph.D. in Physics and Astronomy from Northwestern University in Evanston, IL, awarded in 2013 where my advisor was Professor William P. Halperin. My postdoctoral experience has been in the laboratory of Professor Meigan C. Aronson, first in her lab at Brookhaven National Laboratory while at Stony Brook University, then at in her lab at Texas A&M University and currently at the Stewart Blusson Quantum Matter Institute at The University of British Columbia. Although I have been a postdoc for 5 years and am now a full Research Associate at UBC, I would like to emphasize that I moved with Professor Aronson from Stony Brook to Texas A&M when she was named Dean of the College of Science in September, 2015, and again to UBC when she was named Dean of the Faculty of Science. I have worked diligently to continue my own research while gaining considerable experience starting two new laboratories.

My interests focus on quantum magnetic fluctuations in bulk materials, with emphasis on both crystal growth and neutron scattering as an experimental probe. These areas will continue to be central to my work as a faculty member. As a graduate student, my research concentrated on the topological superconductor UPt_3. The crystals I grew were the highest quality in the world, and my experimental work centered on using these crystals and neutron scattering to determine the structure of the superconducting order parameter and study the coupling of superconductivity to magnetic fluctuations. As a postdoc, I have uncovered with neutron scattering novel quantum magnetic fluctuations in the two dimensional metal YFe_2Al_{10}, the one dimensional metal Yb_2Pt_2Pb, and the mixed valent two dimensional metal Yb_2Si_2Al. I have demonstrated a track record in the growth of quantum materials and in studying them with neutron scattering throughout my career, with publication as recently as July, 2018 and another manuscript currently with referees at *Nature Communications*.

I propose to study through crystal growth, characterization, and neutron scattering novel quantum magnetic excitations in metals brought on through dimensionality, geometric frustration, and electronic correlations, as well as the phase transitions that lead to states hosting such excitations. I have mentored numerous graduate and undergraduate students in these fields in my time in academia, many of whom have pursued scientific careers of their own. I envision a group with many students at all levels pursuing different courses of study in this framework.

Teaching is also important to me, as is evidenced by my successful teaching record. I will bring experience and enthusiasm to the classroom at Texas Tech, and hopefully will learn something from the students as well. I look forward to contributing to all levels of classroom instruction.

Thank you for your time and consideration. My CV, publications list, reference contacts, statement of research plans, and statement of teaching principles are included here. I look forward to hearing from you, and can be reached by phone at +1 604-838-1639 (mobile), or by email at william.gannon@ubc.ca and gannonwilliam83@gmail.com.

Best regards,

William J. Gannon