

October 26, 2018

Search Committee Chair,
Texas Tech University,
Physics and Astronomy Department,
Box 41052,
Lubbock, TX 79409-1051

Dear Committee Chair:

I am writing to apply for the position of the tenure-track assistant professor at Texas Tech University advertised in the American Physical Society webpage. Currently, I am a Postdoctoral Associate at Rutgers University of Dr. Valery Kiryukhin. I believe this to be a challenging and exciting opportunity that is an excellent match for my academic experience and research interest, and I would like to contribute to the continuing success at Texas Tech University.

My research explores quantum mechanical phenomena in magnets that are potential candidates for quantum computation. Quantum computation is crucial for advancement in information/data science and the operation of more complicated social and industrial infrastructures. It uses the fundamentals of quantum superposition and entanglement. To be specific, I investigate quantum entanglement in quantum spin liquid or quantum criticality using x-ray and neutron scattering techniques. Besides, my interest extends to a visualization of antiferromagnetic domains and domain walls in exotic materials such as antiferromagnetic superconductors. The state-of-the-art coherent x-ray imaging technique facilitates a thorough understanding of domain formation and competition with exotic ground states. I have also been in a position to synthesize crystals using solid-state reaction, floating-zone, and high-temperature solution growth techniques. I would like to continue my endeavor to create new quantum materials.

As is clear in my CV, my research has been successful through collaborations with scientists with various academic backgrounds. Through numerous e-mails, teleconferences, and in-person meetings, I gained efficient and effective communication and collaboration skills which are the quality needed for a candidate who can contribute to collaborative research effort and develop an interdisciplinary research program.

I also have been privileged to acquire various teaching and mentoring experiences through interaction with hundreds of undergraduate students in both recitation and laboratory classes. I have also mentored several graduate students, assisting them in preparing for publication and learning experimental skills. Through these experiences, I understand the needs of students and the significance of learning environment that a teacher can provide. I will keep interacting with students and researching new teaching methods to succeed in the educational mission of the Department of Physics and Astronomy at Texas Tech University.

Enclosed are my curriculum vitae, research, and teaching statements for your review. I would be happy to meet you for an interview any time at your convenience.

Thank you for your time and consideration. I look forward to hearing from you.

Sincerely,

Min Gyu Kim
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