

Abstract Submitted  
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**Solid-State Spectroscopy Simulations as a Basis for Physics Education, Recruitment, and Dissemination** TODD HOLDEN, Queensborough Community College of CUNY — In contrast to other fields, current physics research is far removed from introductory curriculum, making it difficult to leverage exciting physics advances to inspire potential physics majors. To help bridge this gap, we are developing several PhET-based apps and related curricular materials to tie undergraduate physics curriculum to advanced and current experimental physics, particularly solid state research. Initial feedback from sophomore level students showed that students needed a gradual build-up in order to develop sufficient background to appreciate even simpler current research. Much of this revolved around developing intuition for quantum physics. One such “build-up” involved a relatively basic Bragg angle/x-ray diffraction simulator directly tied to the undergraduate curriculum and to several Nobel Prizes in physics of the past 100 years. This helps to introduce a more advanced simulator which is used to highlight and explain some of the exciting current advances made possible by resonant inelastic x-ray scattering (RIXS) spectroscopy. Some prototype materials for this project are available at the website <https://tholden79.wixsite.com/mysite2>.

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