

Abstract Submitted
for the DAMOP16 Meeting of
The American Physical Society

Dynamics of Bloch State Positronium Emission from MOF Targets Studied via Rydberg TOF Spectroscopy¹ ALINA PIÑEIRO ESCALERA, ADRIC JONES, ALLEN MILLS, Dept of Physics and Astronomy, University of California, Riverside — Recent advances in the efficient production² and detection³ of Rydberg positronium (Ps) have made it possible to perform energy- and angle- resolved time-of-flight (TOF) spectroscopy with Ps. We report here TOF measurements of Ps emission from the metal-oxide framework (MOF) targets, MOF-5 and ZIF-8. MOFs are a recently synthesized⁴ class of chemical structures, characterized by high long-range order and large surface area to volume ratios (i.e., they are highly porous and uniform, crystalline materials). Ps is found to be emitted predominantly in a series of monoenergetic peaks, providing clear evidence of Ps Bloch states. Measuring the relative populations of the monoenergetic peaks, as a function of implantation energy and target temperature, provides insight into the target-dependent dynamics of Bloch state Ps.

¹Work supported by the U.S. National Science Foundation Grants No. PHY 1206100 and No. PHY 1040590 and the National Science Foundation Graduate Research Fellowship Program (NSF-GRFP). DOE BES DE-FG02-13ER46972 (MOF-5 synthesis and characterization).

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Date submitted: 01 Apr 2016

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