

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Evidence for a positron bound state on the surface of a topological insulator K. SHASTRY, P.V. JOGLEKAR, Z.H. LIM, Univ of Texas at Arlington, B. BARBIELLINI, Northeastern University, A.H. WEISS, Univ of Texas at Arlington — We describe experiments aimed at probing the sticking of positrons to the surface of a topological insulator. A magnetically guided positron beam was used to deposit positrons at the surface of $\text{Bi}_2\text{Te}_2\text{Se}$. The energy spectra and intensities of electrons emitted as a result of the positron irradiation were measured. The spectra showed features that can be identified with Positron Annihilation induced Auger transitions from Bi, Te, and Se providing evidence that the incident positrons were trapped into a surface localized bound state at the time of annihilation. The evidence for a positron bound surface state suggests that positron annihilation can be used to selectively probe the critically important top most layer of topological insulator system. .

K. Shastry
Univ of Texas at Arlington

Date submitted: 15 Nov 2013

Electronic form version 1.4