Abstract Submitted
for the GEC12 Meeting of
The American Physical Society

Recent progress in understanding positron annihilation on molecules[1] A.C.L. JONES, J.R. DANIELSON, M.R. NATISIN, C.M. SURKO, University of California, San Diego — Annihilation at positron energies in the range of the molecular vibrational modes is dominated by large-amplitude vibrational Feshbach resonances (VFR) in which the positron attaches to the molecule.[2] Recently, a broad spectrum of enhanced annihilation has been discovered and is observed in the spectra of many, if not most, molecules.[3] This spectral component, known as statistical multimode resonant annihilation (SMRA), dominates the spectra in small molecules with relatively large binding energies, such as CCl_4 and CBr_4. Incorporation of an SMRA spectral component has allowed for a more accurate probe of VFR magnitudes and is providing insight into the process of intramolecular vibrational redistribution (IVR), through which VFRs can be either enhanced or suppressed.

[1]Work supported by NSF grant PHY 1068023.
[2]G. F. Gribakin, J. A. Young, C. M. Surko, Rev. Mod. Phys. **82**, 2557 (2010).
[3]A. C. L. Jones, et al., Phys. Rev. Lett., **108**, 093201 (2012).

Adric Jones
University of California, San Diego

Date submitted: 18 Jun 2012 Electronic form version 1.4