Influence of molecular geometry on positron binding to molecules.\textsuperscript{1} J. R. DANIELSON, S. GHOSH, C. M. SURKO, University of California San Diego — The observation of vibrational Feshbach resonances (VFR) in the annihilation spectra of positrons on molecules has provided the strongest evidence to date that positrons can bind to molecules.\textsuperscript{2} Further, the shift of these resonances relative to the underlying molecular vibrational modes provides a direct measurement of the positron-molecule binding energy, $\epsilon_b$. Here, this technique is used to study the influence of molecular geometry on $\epsilon_b$ by making measurements on isomers and conformers (i.e., molecules with the same atomic constituents but with the atoms rearranged). The molecular polarizability and dipole moment are only slightly perturbed (typically $< 2\%$), and so the largest effect will be geometrical in nature. A major result is that more spherical molecules (e.g., iso-propanol) have binding energies that are typically $\sim 10 - 20\%$ larger than their chain counterparts (e.g., n-propanol). For molecules with larger molecular dipole moments, and subsequently larger binding energies, this effect is larger. Comparisons of these results to a new model by Swann and Gribakin\textsuperscript{3} will be discussed.

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\textsuperscript{2}Gribakin, et al., Rev. Mod. Phys. 82, 2557 (2010).