

Abstract Submitted
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Positron annihilation spectroscopy study of polymers and organic liquids PAUL ARPIN, Harvey Mudd College, Claremont CA 91711, C.A. QUARLES, Physics and Astronomy Dept., TCU, Fort Worth TX 76129 — We have used positron annihilation Doppler broadening spectroscopy and positron annihilation lifetime spectroscopy to investigate properties of several polymers and organic liquids. The Doppler broadening is characterized by the S parameter, which is a measure of the probability of low momentum annihilations in the material. The lifetime spectroscopy is characterized by the ortho-positronium (o-Ps) lifetime and intensity of o-Ps formation. We found that the correlation between the S parameter and the probability of o-Ps formation is dependent on polymer composition and sensitive to oxygen or fluorine present in the polymer. A similar conclusion has also been recently reported by another group.[1] We also found correlations between our results and various physical parameters characterizing the materials.

[1] K. Sato, et al, Phys. Rev. B 71, 012201 (2005).

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