

## W0403

**SAXS Study of Protein-Polymer Interactions.** I.L. Torriani<sup>1,2</sup>, C.L.P. Oliveira<sup>1,2</sup>, N.L. Almeida<sup>3</sup>, W. Loh<sup>3</sup>, <sup>1</sup>IFGW, UNICAMP, Campinas, SP, Brazil, <sup>2</sup>Laboratório Nacional de Luz Síncrotron, Campinas, SP, Brazil, <sup>3</sup>IQ, UNICAMP, Campinas, SP, Brazil.

The interaction between biological macromolecules and non-adsorbing polymers is considered of utmost importance in the study of protein crystallization processes and in a large number protein-polymer systems. The aim of this work was to obtain structural details of lysozyme in solution in the presence of Poly(ethylene oxide) and various of its copolymers with poly(propylene oxide). The effect of these polymers on the thermal stability of the protein were investigated by small angle X-ray scattering in temperature dependent experiments performed from 25°C to 80°C by means of a real time data acquisition system. At 80 °C the structural changes could be monitored as a function of time. Real space analysis of the intensity functions was performed using the inverse Fourier transformation of the scattering data. Measurements of the kinetics of aggregation of denatured lysozyme with copolymer P105 proved that the aggregation is inhibited by this copolymer. These results suggest that the exposure of hydrophobic groups of the denatured protein is responsible for the protein-copolymer interaction. Since these effects are only observed for copolymers, we conclude that this is an entropically driven hydrophobic (i.e., non specific) interaction.