Infrared Signatures of Phase Transitions in Fullerene-Based Materials

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Fullerene compounds exhibit an amazing variety of solid-state structures, both static and dynamic, changing with temperature, pressure and thermal history. Vibrational spectroscopy, which detects the changes in molecular symmetry, is ideal for the investigation of these structures and the transitions between them. I will present results on metal fulleride salts, fullerene polymers and fullerene clathrates, revealing such phenomena as one- and two-dimensional polymerization and depolymerization, nanosegregation, metal-insulator transitions, and static and dynamic Jahn-Teller distortion.

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