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**Isotactic polypropylene carbon nanotube composites – crystallization and ordering behavior** GEORGI GEORGIEV, Assumption College, ROBERT JUDITH, Tufts University, ERIN GOMBOS, MICHAEL MCINTYRE, Assumption College, SCOTT SCHOEN, PEGGY CEBE, Tufts University, MICHAEL MATTERA, Assumption College, ASSUMPTION COLLABORATION, TUFTS COLLABORATION — The field of Polymer Nanocomposites (PNCs) is growing steadily in recent years. We use carbon nanotubes (CNTs) to affect the crystallization behavior of the polymers. Isotactic Polypropylene (iPP) is very widely used and is a good model system to understand the physics of other similar polymers. iPP/CNT PNCs form $\alpha$, $\beta$, and $\gamma$ crystallographic phases under a variety of crystallization conditions: non-isothermal and isothermal melt crystallization, shear, stress, fiber extrusion, etc. The crystal growth is altered from spherulitic to $\alpha$-fibrillar upon the nucleation effect of CNTs. We are studying the effect of different temperature treatment schemes and different isothermal crystallization conditions. We found also that the smectic ordering in iPP is improved by the introduction of CNTs. We use Differential Scanning Calorimetry, Wide Angle X-ray scattering, Microscopic Transmission Ellipsometry and Avrami analysis. Research supported by: Assumption College Faculty Development Grant, funding for students' stipends, instrumentation and supplies, the NSF Polymers Program of the DMR, grant (DMR-0602473) and NASA grant (NAG8-1167).

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