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**Effect of Carbon Nanotubes on Thermal Behavior of Poly(L-lactide) and Poly(D-lactide) Electrospun Fibers**<sup>1</sup> YAZHE ZHU, MAO BIN, PEGGY CEBE, Tufts University — Thermal properties and crystallization behavior of electrospun polymer composites fibers of poly (L-lactide) (PLLA) and poly (D-lactide) (PDLA) blended with a small amount of carbon nanotubes (0.1-4 wt%) were systemically studied by differential scanning calorimetry, wide- and small- angle X-ray scattering , and time-resolved Fourier transform infrared spectroscopy. The disordered  $\alpha'$ -form crystal and the more stable  $\alpha$ -form crystal in polymer composites are produced respectively at low and high crystallization temperatures ( $T_c$ ). It was found that the  $\alpha'$ - to  $\alpha$ -crystalline phase transition occurs prior to the dominant melting in both polymer composites PLLA and PDLA crystallized at low  $T_c$ . We compare the effect of carbon nanotubes on this transition for neat and filled samples. Moreover on increasing the content of CNTs from 0.1 to 4 wt%, the induction period for crystallization was shortened and the polymer composites' crystallization rate was enhanced. The  $\alpha'$ - to  $\alpha$ -crystalline phase transition of PLLA and PDLA was better accelerated at low  $T_c$  from 80° to 120°. With increasing  $T_c$ , CNTs have smaller influence on the transition.

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