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Nano-Scale Confinement Effects on Poly(ϵ -caprolactone) Crystallization at the Air/Water Interface QIONGDAN XIE, BINGBING LI, TOMONORI SAITO, WEN YIN, TIMOTHY LONG, RICHARD GANDOUR, ALAN ESKER, Department of Chemistry (0212), Virginia Tech, Blacksburg, VA 24061 — Poly(ϵ -caprolactone)s (PCL) with different mole mass were synthesized by using tri-ester primary amine as an initiator, tin(II) 2-ethylhexanoate as the catalyst, anhydrous tetrahydrofuran as a solvent at 80 °C. The three triester groups were further hydrolyzed to render PCL linear polymers with triacid end groups (PCL Triacid). The as-synthesized PCL triacids were attached to 9 nm magnetic nanoparticles (MNP) by ligand exchange with oleic acid in refluxing chloroform for 24 h. The crystallization behavior of PCL trihead and PCL MNPs at the air/water interface were compared with reported linear PCL crystallization. Regular crystalline morphologies observed for linear PCL are not observed for PCL-trihead and PCL-MNPs.

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