Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Functional Polymer Crystallization in Cylindrical Pores[1] AURORA NOGALES, Instituto de Estructura de la Materia, IEM-CSIC, JAIME MARTIN, Department Of Materials, Imperial College London — Crystallization of polymers confined to nanoscopic cavities is attracting increasing interest as tool to deal with classical problems of the crystallization process, such as the early stages of the liquidsolid transformation or the nature of the crystal growth-front, as both processes seem to be size dependent. At the same time , these investigations are essential to achieve nanostructures with optimal properties due to the fact that their mechanical, optical, transport, or ferroelectric properties depend to a large extent on the crystalline characteristics of the nanostructure, i.e., the crystallinity, the polymorph, the crystal size, the crystal orientation, the defects, and so on. In this context, the system composed of polymers confined into anodic aluminum oxide (AAO) nanopore arrays is standing out due to a high tunability on the degree of confinement in terms of the pore diameter, a mechanical rigidity of the hard pore walls, and a well-defined confining geometry. In this contribution we discussed on the effect of confinement on the crystallization of functional polymers in AAO nanopores, like P3HT, PVDF-TrFE and PFO, and the modification of their functionality due to crystallization under confinement.

[1]Mineco (MAT2014-59187-R)

Aurora Nogales
Instituto de Estructura de la Materia, IEM-CSIC

Date submitted: 22 Nov 2016 Electronic form version 1.4