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Functional Polymer Crystallization in Cylindrical Pores1 ,

AURORA NOGALES, Instituto de Estructura de la Materia, IEM-CSIC,

JAIME MARTIN, Department Of Materials, Imperial College London |

Crystallization of polymers con\_ned 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 liquid solid 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 con\_ned into anodic aluminum oxide (AAO) nanopore arrays is standing out due to a high tunability on the degree of con\_nement in terms of the pore diameter, a mechanical rigidity of the hard pore walls, and a well-de\_ned con\_ning geometry. In this contribution we discussed on the e\_ect of con\_nement on the crystallization of functional polymers in AAO nanopores, like P3HT, PVDF-TrFE and PFO, and the modi\_cation of their functionality due to crystallization under con\_nement.

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