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Chain Trajectory of Semicrystalline Polymers As Revealed by Solid-State NMR Spectroscopy[1]

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Over the last half century, chain-folding structure of semicrystalline polymers is debatable of matter in polymer science. Recently, 13C-13C double quantum (DQ) NMR spectroscopy combined with 13C selective isotope labeling has been developed to investigate re-entrance sites of the folded chains, mean values of adjacent re-entry number <n>and fraction <F>of semi-crystalline polymers. This viewpoint highlights the versatile approaches using NMR and 13C isotope labeling for revealing i) chain trajectory in melt- and solution-grown crystals, ii) conformation of the folded chains in single crystals, iii) self-folding in the early stage of crystallization, and iv) unfolding of folded chains under stretching.

[1]NSF DMR 1408855

[2]I am APS member but I am traveling now. I can not access my password.