Molecular dynamics simulations of polymer crystallization via 
self-seeding$^{1}$ CHUANFU LUO$^{2}$, JENS-UWE SOMMER, Leibniz Institute of Poly-
mer Research Dresden, 01069, Germany — We use large scale molecular dynamics 
(MD) to simulate the processes of polymer crystallization with a coarse-grained 
model. In total we are able to simulate 1000 polymer chains made of 1000 monomers 
each, a system large enough to compare to experimental relevant, entangled melts. 
It is found that some micro crystalline domains (MCDs) can survive slightly above 
the apparent melting temperature after a consistent cooling and reheating cycle. We 
chose the stablest MCD as a baby seed and let it grow at a constant quenched tem-
perature. A single lamella can be formed via this self-seeding process. We observe 
the growth pathway and analyze the chain dynamics especially at the growth front. 

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