

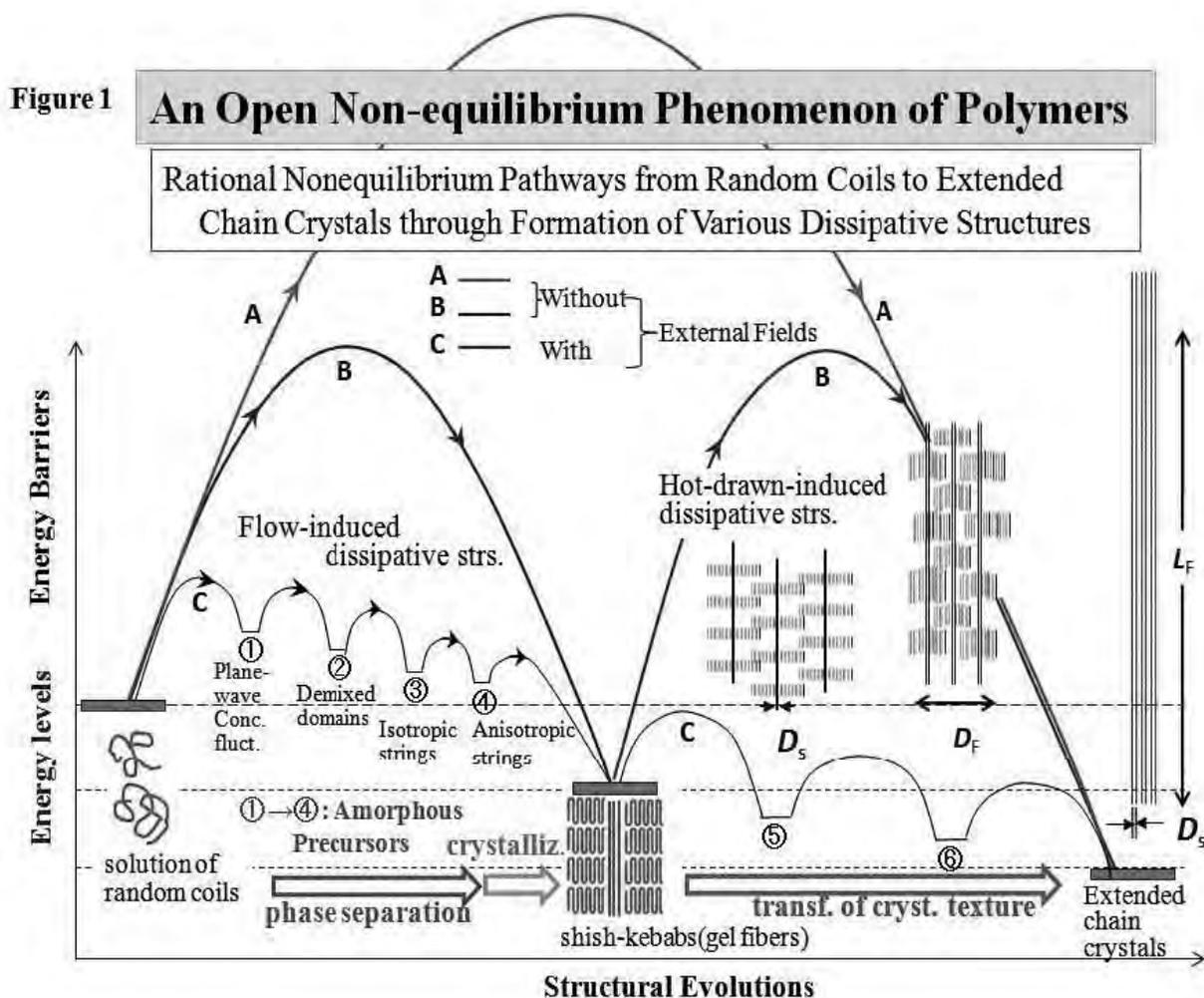
Cascading Time Evolution of Dissipative Structures for Creation of Shish-kebab

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External fields imposed on homogeneous systems can drive the systems to form ordered structures of the so-called “dissipative structures”, when the fields can effectively reduce entropy and hence the free energy barrier for formation of the ordered structure [1]. We elucidated kinetic pathways, along which: (1) homogeneous polyethylene solutions composed of entangled random coils in quiescent state develop shish-kebabs under flow fields imposed on the solutions [2,3]; (2) Shish-kebabs swollen with solvent develop extended chain crystals under hot-drawings at temperatures close to draw-ratio-dependent melting temperatures [4]. The various dissipative patterns found in the kinetic pathways are summarized schematically in Figure 1. Acknowledgements: The author gratefully acknowledges Drs. H. Murase and Y. Ohta for their collaborations on this work.

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