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Chinese, Simplified
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研究领域: 功能聚合物纳米复合材料及凝胶等软物质体系力学性能与流变学行为的理论与计算模拟研究

拟研究

教育和工作经历

2019.03-现今 厦门大学物理系, 副教授

2016.02-2019.06 美国北卡罗来纳大学教堂山校区, 博士后研究员

2014.01-2016.01 浙江理工大学, 讲师 (校特聘教授B)

2012.08-2013.12 德国德累斯顿莱布尼兹聚合物研究所, 博士后研究员

2007.09-2012.07 厦门大学物理系, 硕博连读

2009.05-2010.03 & 2011.07-2011.09 德国德累斯顿莱布尼兹聚合物研究所, 联培

2003.09-2007.07 黑龙江大学物理学实验班, 大学本科

代表性文章或专著

- (1) X.Z. Cao*, H. Merlitz* and Chen-Xu Wu* Mechanical strength management of polymer composites through running transient networks. *The Journal of Physical Chemistry Letters*, 2020, 11:710.
- (2) X.Z. Cao*, H. Merlitz and M.G. Forest* Nanoparticle loading of unentangled polymers induces entanglement-like relaxation modes and a broad sol–gel transition. *The Journal of Physical Chemistry Letters*, 2019, 10:4968.
- (3) X.Z. Cao and M.G. Forest* Rheological tuning of entangled polymer networks by transient crosslinks. *The Journal of Physical Chemistry B*, 2019, 123:974.
- (4) X.Z. Cao*, H. Merlitz*, and C.X. Wu* Tuning adsorption duration to control the diffusion of a nanoparticle in adsorbing polymers. *The Journal of Physical Chemistry Letters*, 2017, 8:2629.
- (5) X.Z. Cao*, H. Merlitz, C.X. Wu, G. Ungar and J.U. Sommer A theoretical study of dispersion-to-aggregation of nanoparticles in adsorbing polymer using molecular dynamics simulations. *Nanoscale*, 2016, 8:6964.
- (6) X.Z. Cao*, Z.G. Duan, J.S. Wang, Y.S. Liu, C.X. Wu Thin polymer-layer decorated, structure adjustable crystals of nanoparticles. *Physical Chemistry Chemical Physics*, 2015, 17:22533.
- (7) X.Z. Cao, H. Merlitz*, C.X. Wu*, and J.U. Sommer Polymer induced inverse temperature crystallization of nanoparticles on a substrate. *ACS Nano*, 2013, 7:9920.
- (8) X.Z. Cao, H. Merlitz*, C.X. Wu*, S.A. Egorov*, and J.U. Sommer Effective pair potentials between nanoparticles induced by single monomers and polymer chains. *Soft Matter*, 2013, 9:5916.
- (9) X.Z. Cao, H. Merlitz*, C.X. Wu*, and J.U. Sommer Entropy

dominated behaviors of confined polymer nanoparticle mixture.

Chinese Physics B, 2012, 21:118202.

(10) X.Z. Cao, H. Merlitz*, C.X. Wu*, and J.U. Sommer Polymer induced entropic depletion potential. Physical Review E, 2011, 62:5360.

科研基金

(1) 国家自然科学基金面上项目, 项目号11974291, 树脂对橡胶粘弹性能影响的模拟和理论研究, 2020.01-2023.12, 主持/在研

(2) 厦门大学校长基金, 2019.01-2021.12, 主持/在研

(3) 国家自然科学基金青年项目, 项目号11404288, 聚合物纳米粒子复合物多尺度相互作用及动态扩散研究, 2015.01-2017.12, 主持/结题

(4) 浙江理工大学521中青年骨干人才资助项目, 2015.01-2016.12, 主持/结题

(5) 浙江理工大学引进人才科研启动项目, 2014.01-2016.12, 主持/结题

任教课程

大学物理, 高分子物理, 材料物理