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Current Research

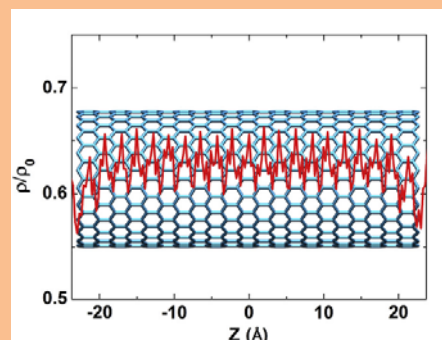
Antifreeze mechanism; Biomimetics; Colloidal assembly; Crystallization; Nucleation; Biomineralization; Ion channel and ionic conduction; Graphene nanopore and functionalization; Free energy calculation.

Selected Publication

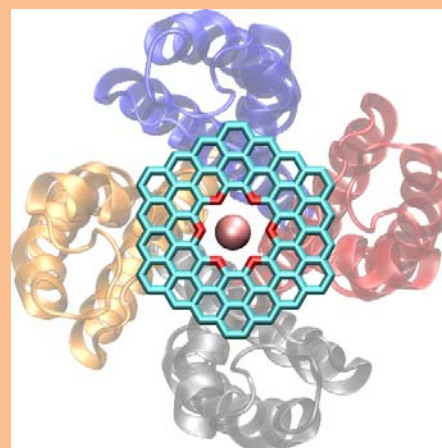
- 1 **Z. Zhang**, Y. Kang, L. Liang, Y. Liu, T. Wu, and Q. Wang. Peptide encapsulation regulated by the geometry of carbon nanotubes. *Biomaterials* **35**, 1771-1778, (2014).
- 2 **Z. Zhang**, J. Shen, H. Wang, Q. Wang, J. Zhang, L. Liang, H. Ågren, and Y. Tu. Effects of Graphene Nanopore Geometry on DNA Sequencing. *J. Phys. Chem. Lett.*, 1602-1607, (2014).
- 3 Y. Kang, **Z. Zhang**, H. Shi, J. Zhang, L. Liang, Q. Wang, H. Argen, and Y. Tu. Na⁺ and K⁺ ion selectivity by size-controlled biomimetic graphene nanopores. *Nanoscale*, (2014).
- 4 **Zhang, Z.**, Wu, T., Wang, Q., Pan, H. & Tang, R. Impact of interfacial high-density water layer on accurate estimation of adsorption free energy by Jarzynski's equality. *J. Chem. Phys.* **140**, 034706, (2014).
- 5 **Zhang, Z.**; Santos, A. P.; Zhou, Q.; Liang, L.; Wang, Q.; Wu, T.; Franzen, S., Steered molecular dynamics study of inhibitor binding in the internal binding site in dehaloperoxidase-hemoglobin. *Biophysical Chemistry* **211**, 28-38, (2016).
- 6 L. Liang, **Z. Zhang**, J. Shen, K. Zhe, Q. Wang, T. Wu, H. Agren, and Y. Tu. Theoretical studies on the dynamics of DNA fragment translocation through multilayer graphene nanopores. *RSC Advances* **4**, 50494-50502, (2014).
- 7 X. Chu, W. Jiang, **Z. Zhang**, Y. Yan, H. Pan, X. Xu, and R. Tang. Unique roles of acidic amino acids in phase transformation of calcium phosphates. *J. Phys. Chem. B* **115**, 1151-1157, (2010).
- 8 Tao, J., Zhou, D., **Zhang, Z.**, Xu, X. & Tang, R. Magnesium-aspartate-based crystallization switch inspired from shell molt of crustacean. *Proc. Natl. Acad. Sci. U.S.A.* **106**, 22096-22101, (2009).



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Biomaterials, 35(2014), 1771-1778.



Nanoscale, 2014, 6, 10666.