Abstract Submitted
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**Thermal conductivity of graphene nanoribbons** GUO ZHIXIN, ZHANG DIER, GONG XIN-GAO, Department of Physics, Fudan University — We have investigated thermal conductivity of graphene nanoribbons (GNRs) with different edge shapes as a function of the length, width, and strain in use of the nonequilibrium molecular dynamics method. The thermal conductivity does not converge to a finite value with the increase of GNRs' length up to 60 nm, while follows a power law of $K \sim L^{\beta}$, indicating very high thermal conductivities and long PMFPs of GNRs. Moreover, the thermal conductivity is very sensitive to the edge shapes. It is found the zigzag GNR's thermal conductivity increases first and then decreases with the width increasing, while, the armchair GNR's thermal conductivity monotonously increases with width. A competitive mechanism is further proposed to explain such interesting phenomena. Very remarkable decrease of thermal conductivity is also obtained when a tensile/compressive uniaxial strain is applied on the GNRs [1].

[1] Zhixin Guo, Dier Zhang, and Xin-Gao Gong, Appl. Phys. Lett. 95, 163103 (2009).

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