Abstract Submitted
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Ideal strength of graphene[1] SUNGJONG WOO, YOUNG-WOO SON, Korea Institute for Advanced Study — We have investigated the ideal strength of graphene by calculating the response under strain based on density functional theory. The strength of materials with usual contaminations and impurities is typically weaker than the ideal one. However, we have considered realistic factors and calculated several electromechanical properties of perturbed graphene showing that under certain conditions graphene can endure more strain than the pristine one. The interpretation of our result will be presented in the context of competitions among different energy scales under mechanical strains that eventually leads to the structure failure.

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