

Abstract Submitted  
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**Hepta-graphene: tunable band gap in a graphitic layer**<sup>1</sup> ALEJANDRO LOPEZ-BEZANILLA, IVAR MARTIN, PETER LITTLEWOOD, Argonne Natl Lab — Creating an electronic band gap in graphene has been a major challenge limiting its applications. We provide theoretical evidence that chemical modification of graphene can transform its unit cell from hexagonal to rectangular, and lead to band gap opening upon additional application of shear stress. The new material is called hepta-graphene, an elastic interlock of 7-membered C rings in a rectangular lattice and dynamical stability. [Scientific Reports 6, 33220 (2016)]

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