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Phyiscal adsorption induced band gap openning in graphene YOUJIAN TANG, Penn State, VINCENT CRESPI, VINCENT CRESPI GROUP TEAM — Gapping graphene is crucial for enabling its use in next-generation electronic devices. Here we show that physical adsorption of suitable aromatic molecules onto graphene can generatate a moderate band gap of approximately 0.125 eV, with an adsorption energy 0.67 eV. The reason for such a band gap is that the Lowest unoccupied molecule orbit of adsobate is right across the fermi level of graphene and thus gennerate a big perturbation on graphene dirac point energy level.

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