Dynamics of Graphene Edges Interaction under Joule-heating

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The edge physics of graphene plays an essential role in the electronic properties of nanometer scale graphene. Studying the Joule-heating of a graphene sample supported by an integrated TEM-STM instrument is an effective way to sharpen graphene edges, and therefore produce smooth graphene nanoribbons, which will be studied in this work. Through observation of the movement of graphene platelets heat-treated within a crystalline domain of graphene substrate underneath, we advance our understanding about the mechanism of edge reconstruction, edge-edge interaction, in addition to the graphene substrate interaction for single layer graphene.

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