CVD Graphene/Ni Interface Evolution in Sulfuric Electrolyte

Systems comprising single and multilayer graphene deposited on metals and immersed in acid environments have been investigated, with the aim of elucidating the mechanisms involved, for instance, in hydrogen production or metal protection from corrosion. In this work, a relevant system, namely chemical vapor deposited (CVD) multilayer graphene/Ni (MLGr/Ni), is studied when immersed in a diluted sulfuric electrolyte. The MLGr/Ni electrochemical and morphological properties are studied in situ and interpreted in light of the highly oriented pyrolytic graphite (HOPG) electrode behavior, when immersed in the same electrolyte. Following this interpretative framework, the dominant role of the Ni substrate in hydrogen production is clarified.

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