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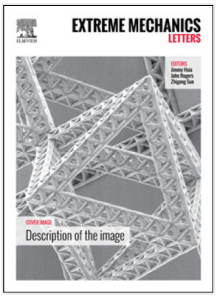

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Graphitic Materials: Intrinsic Hydrophilicity and Its Implications

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Abstract

Graphitic materials are long regarded as model hydrophobic materials. However, recent work has shown that graphite and graphene are much more hydrophilic than previously thought. It was revealed that the commonly observed hydrophobic nature of graphite is due to airborne hydrocarbon contamination that was not considered in previous studies. This perspective highlights these recent developments and discusses their implications to research on water-carbon interactions, wetting transparency, electrochemistry, adsorption and adhesion, and lubrication and wear.

Keywords: carbon; contact angle; surface contamination; electrochemistry; surface properties; wear.