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Water Interaction with Pristine and Nanopatterned Graphite Surfaces DINKO CHAKAROV, Chalmers University of Technology — We used number of surface sensitive techniques to study and compare the interaction of water with pristine surface of highly oriented pyrolytic graphite and model nanostructured surfaces fabricated by hole-mask colloidal lithography and oxygen plasma etching. Surface morphology and concentration of defects play important role and determine the amount of water bound in two- and three-dimensional hydrogen-bonded networks and thus the structure of ice films. Similarly, the amount and concentration of intersheet openings control the rate of water intercalation into graphite structures. The new findings are of particular interest for development of graphene exfoliation methods and for better understanding of graphene functionalization.

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