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Water confined between hydrophobic and hydrophilic plates ZHENGHAN GAO, Department of Physics, Columbia University, New York, NICO-LAS GIOVAMBATTISTA, Department of Physics, Brooklyn College of the City University of New York, Brooklyn, New York, OZGUR SAHIN, Department of Physics, Columbia University, New York — Water remains stable under tension due to its cohesion. For bulk water, experiments show it can remain stable down to -120Mpa. However, confinement can change the stability of the systems and may affect the phase diagram. For example, water confined in graphene can form square ice at room temperature. Using molecular dynamic simulation, we investigate the phase diagram of water and its physical states when water is confined between graphene sheets. Our results allowed determining pressure-separation phase diagrams of water confined by hydrophobic and hydrophilic surfaces. Although water under confinement is difficult to study experimentally, our MD simulations offer insight into the basic features of these systems.

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