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Alexander Mazel, Izabella Stuhl* (ius68@psu.edu) and **Yuri Suhov**. *The hard-core model on 2D graphs.*

We will report on results about high-density Gibbs measures in the hard-core model on discrete 2D structures: a unit triangular lattice \mathbb{A}_2 , square lattice \mathbb{Z}_2 and a hexagonal tiling \mathbb{H}_2 . We describe the extreme Gibbs measures for a general value of allowed Euclidean hard-core diameter D by referring to number-theoretical properties of the (integer) number D^2 . The main tool is the well-known Pirogov-Sinai theory. In particular, we address the issue of sliding arising for models on \mathbb{Z}^2 and \mathbb{H}_2 . (Received January 27, 2020)