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Packings of soft disks[1] PRIMOZ ZIHERL, University of Ljubljana and Jozef Stefan Institute, MARIJA VIDMAR, University of Ljubljana — We explore the stability of 2D ordered structures formed by soft disks treated as isotropic solid bodies. Using a variational model, we compute the equilibrium shapes and the elastic energy of disks in regular columnar, honeycomb, square, and hexagonal lattice. The results reproduce the Hertzian interaction in the regime of small deformations. The phase diagram of elastic disks is characterized by broad regions of phase coexistence; its main feature is that the coordination number of the stable phases decreases with density. These results may provide an insight into structure of the non-close-packed lattices observed in certain nanocolloidal systems.

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