Predicting Universal Pattern Formation on Spheres with Application to Self-Assembly of Patchy Colloids ERIK EDLUND, OSKAR LINDGREN, MARTIN NILSSON JACOBI, Chalmers University of Technology — Patchy colloids, colloidal particles with attractive or repulsive patches, serve as a central example of building blocks for self-assembly [1]. The patches can be created using e.g. glancing angle deposition, but recently interest has turned towards using self-assembly for creating the patterns themselves [2]. We present theory for predicting pattern formation of isotropically interacting particles on spheres, based on a relaxation of a Potts-like model who's interactions can be diagonalized (a generalization of the approach in [3]). We give a simplified model of immiscible surfactants on gold nanoparticles[4,5] which we use to demonstrate the theory. We use the theory to design patchy particles for self-assembly of specific geometric structures.

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