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2D crystals of Janus amphiphilic colloidal spheres SHAN JIANG, STEPHEN ANTHONY, University of Illinois at Urbana-Champaign, ANGELO CACCIUTO, Columbia University, ERIK LUIJTEN, STEVE GRANICK, University of Illinois at Urbana-Champaign — Colloidal spheres with one side hydrophilic and the other side hydrophobic assemble into 2D crystals with hexagonal translational order complemented by a high degree of orientational organization. Factors that determine the crystal structure are investigated, especially the dependence on ionic strength and on Janus balance. Depending on these variables, patches of the orientational order can be altered: from doublets to extended lines containing dozens of particles. Janus particles with different geometry (Janus balance) self-assemble into different cluster structures. Collective motion is evident from time-resolved optical microscopy.

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