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Alloys of Suspended Colloidal Donuts and Spheres T.G. MASON, C. HERNANDEZ, Department of Chemistry and Biochemistry, University of California- Los Angeles, C.K. HARRISON, Schlumberger-Doll Research, P.M. CHAIKIN, Princeton University — We present a study of the structure of mixed dispersions, or "alloys", of colloidal donuts and spheres. By contrast to previous studies of colloidal alloys, this study allows for the investigation of how the possible penetration of one species through a hole in another can alter the structures. Three different regimes have been investigated: when the diameter of the donut's hole is much larger than, equal to, and significantly smaller than the sphere's diameter. In the case when the spheres are slightly smaller than the holes, interpenetrating particle configurations are possible, and the spheres can explore a larger positional phase space. In this case, we report the variation of these structures with respect to the two independent volume fractions of spheres and of donuts.

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