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Clusters of polyhedra in spherical confinement[1] ERIN TEICH, GREG VAN ANDERS, DAPHNE KLOTSA[2], JULIA DSHEMUCHADSE, SHARON GLOTZER, University of Michigan — Dense particle packing in a confining volume is a rich, largely unexplored problem, with applications in blood clotting, plasmonics, industrial packaging and transport, colloidal molecule design, and information storage. We report simulation results for dense clusters of the Platonic solids in spherical confinement, for up to N = 60 constituent particles. We discuss similarities between clusters in terms of symmetry, a connection to spherical codes, and generally the interplay between isotropic geometrical confinement and anisotropic particle shape. Our results showcase the structural diversity and experimental utility of families of solutions to the problem of packing in confinement.

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