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**Structural phases of trapped colloids with competing interactions in two and three dimensions**[1] SÉRGIO WLADEMIR DA SILVA APOLINÁRIO, LUCAS DE QUEIROZ DA COSTA CAMPOS, EVERTON OLIVEIRA LIMA, Universidade Federal de Pernambuco, HARTMUT LÖWEN, Heinrich-Heine-Universität, Düsseldorf — By employing Brownian dynamics simulation we analyzed the spatial configurations resulting from a self-assembly process of colloidal particles interacting via a competive isotropic pair potential both in two and three dimensions. A wide variety of different spacial configurations is found to be stable which includes, for two dimensions, clusters with a fringed outer rim (reminiscent to an ornamental border), clusters perforated with voids as well as clusters with a crystalline core and a disordered rim, and, for three dimensions, clusters perforated with channels and helical fringes. All cluster structures occur in a two-dimensional parameter space. The structural ordering can therefore be efficiently tuned by changing few parameters only providing access to a controlled fabrication of colloidal clusters.

[1]FACEPE and CNPq

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