

Free boundary minimal hypersurfaces

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We will survey some recent work on free boundary minimal hypersurfaces, which are the critical points of the volume functional on the class of properly embedded codimension one submanifolds in a given Riemannian manifold with boundary. Geometrically, the free boundary condition simply means that the hypersurface meets the ambient boundary orthogonally. Among other things, we will explain a geometric classification of the critical catenoid (joint work with Ivaldo Nunes) and discuss on what information about such hypersurfaces one can extract from the knowledge of their Morse index (joint work with Alessandro Carlotto and Ben Sharp).