Topological aspect of Wulff shapes

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In 1901, Georg Wulff gave a simple geometric construction for the shape of a crystal at equilibrium. In this talk, we investigate Wulff shapes, which are the sets obtained by Wulff's geometric construction, from the topological viewpoint. One of our results is that the given Wulff shape is never a polytope if its support function is of class C^1. We also provide a characterization of the given Wulff shape from the viewpoint of pedals, which may be regarded as a bridge between the mathematical aspect of crystals at equilibrium and the mathematical aspect of perspective projections.

This is a joint work with Yu Sakemi.