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Membrane approach to balloons and some related surfaces. (English) [Zbl 1094.74037](#)

Mladenov, Ivaïlo (ed.) et al., Proceedings of the 7th international conference on geometry, integrability and quantization, Sts. Constantine and Elena, Bulgaria, June 2–10, 2005. Sofia: Bulgarian Academy of Sciences (ISBN 954-8495-30-9/pbk). 176-186 (2006).

Summary: The well-known Laplace-Young equation asserts that the pressure difference across the film or a membrane in equilibrium is proportional to the mean curvature with proportionality constant being the surface tension of the interface. Here we present two variants of this equation leading to Delaunay surfaces and to mylar balloons, and in this way we provide their nonvariational characterization.

For the entire collection see [\[Zbl 1089.53004\]](#).

MSC:

[74K15](#) Membranes

[53A05](#) Surfaces in Euclidean and related spaces

Keywords:

Laplace-Young equation; mylar balloon, Delaunay surface