On the volume of unit vector fields in 2 and 3 dimensions

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Abstract

Starting from a well-known idea of the proof via calibrations that the Hopf vector elds are unique minimizers of the functional volume of vector elds on the sphere S^3, we show the possibility of using a new di erential system on the tangent sphere bundles either of a Riemann surface (dim 2) or of a space of dim 3 of constant sectional curvature. New calibrations give new results of the same sort.