The Spherical Convex Floating Body

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We introduce the spherical convex floating body for a convex body on the Euclidean unit sphere. The asymptotic behavior of the volume difference of a spherical convex body and its floating body is investigated. This gives rise to a new spherical area measure, the floating measure. Remarkably, this floating measure turns out to be a spherical analogue to the classical affine surface area from affine differential geometry. We show that the floating measure is an upper-semicontinuous valuation and establish an isoperimetric inequality.