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view on affine differential geometry from the perspective of illumination bodies.*

Illumination bodies have been used in affine geometry to extend the definition of affine surface area to arbitrary convex bodies. We will show that, among convex bodies with sufficiently regular boundary, illumination bodies provide yet another characterization of ellipsoids. Moreover *weighted* illumination bodies can be similarly employed to characterize ellipsoids and, in addition, they lead naturally to a geometric interpretation of p -affine surface area as defined by Lutwak. (Received September 04, 2006)