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Classification of Curvature Measures with Values in Irreducible SO(n)-Representations

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Hug, Schneider and Schuster have classified all valuations and curvature measures with values in symmetric tensors (which they call local tensor valuations) in Euclidean spaces. We generalize several their results by giving a classification of all curvature measures and valuations with values in arbitrary SO(n)-representation together with differential forms inducing them. The discovered differential forms may provide an efficient means of studying the module structure and the (semi-local) kinematic formulae for this extended class of curvature measures.

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