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$SO(n)$ covariant local tensor valuations on convex bodies

Joint with Daniel Hug

The Minkowski tensors are valuations on the space of convex bodies in $\mathbb{R}^n$ with values in a space of symmetric tensors, having additional covariance and continuity properties. They are extensions of the intrinsic volumes, and as these, they are the subject of classification theorems, and they admit localizations in the form of measure-valued valuations. In two and three dimensions, Minkowski tensors have found some practical applications. For the local tensor valuations, classification theorems have been proved recently, either on polytopes without continuity assumptions or on convex bodies, assuming weak continuity. Motivated by Mykhailo Saienko's recent discovery of smooth local tensor valuations in two and three dimensions that are covariant under $SO(n)$ but not under $O(n)$, we extend our former classification results in a similar way.