

# Quadratic Killing tensors on symmetric spaces

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## Abstract

We will present some recent results on the structure of the algebra of Killing tensors on Riemannian symmetric spaces. The fundamental question (Bolsinov -Matveev-Miranda-Tabachnikov, 2018), is whether any Killing tensor field on a Riemannian symmetric space is decomposable, that is, is a polynomial in Killing vector fields. For spaces of constant curvature, the answer is in the positive, as has been known for quite some time. The same is true for the complex projective space (Eastwood, 2023). For other rank one symmetric spaces, the answer is almost always in the negative (Matveev-Nikolayevsky, 2024). We show that for several classes of symmetric spaces, all quadratic Killing tensors are decomposable. This is a joint project with my PhD supervisors Y.Nikolayevsky (La Trobe University, Australia) and V.Matveev (University of Jena, Germany).