ORTHOGONALLY SEPARABLE COORDINATES ON THE 3-SPHERE

KONRAD SCHÖBEL (UNIVERSITÄT JENA)

Integrable Killing tensors are used to classify orthogonal coordinates in which the classical Hamilton-Jacobi equation can be solved by a separation of variables. We establish purely algebraic equations characterising the integrability of Killing tensors on constant curvature manifolds and solve them explicitly on the 3-sphere.

We describe the algebraic variety of integrable Killing tensors and use this to classify all orthogonal separable coordinate systems. Several generalizations of this result will be proposed.