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Explicit eigenfunctions of the Laplacian on compact symmetric spaces

Abstract

Using simple ideas from representation theory, I will describe how to find a spanning set of explicit eigenvectors for the Laplacian on compact symmetric spaces. In so doing, I explain and generalise the constructions of Grantcharov-Grantcharov-Montoya (arxiv:2102.06255) and Gudmundsson-Siffert-Sobak (arxiv:2008.08555). I shall discuss a number of examples.