



Potential Representation - Global vs. Local Trial Functions

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Many systems of trial functions are available for representing potential fields on the sphere or parts of the sphere. We distinguish global trial functions (such as spherical harmonics) from localized trial functions (such as spline basis functions, scaling functions, wavelets, and Slepian functions). All these systems have their own pros and cons.

We discuss the advantages and disadvantages of several selected systems of trial functions and propose criteria for their applicability. Moreover, we present an algorithm which is able to combine different types of trial functions. This yields a sparser solution which combines the features of the different basis systems which are used.