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**Ratikanta Behera\*** ([ratikanta@iiserkol.ac.in](mailto:ratikanta@iiserkol.ac.in)), Department of Mathematics and Statistics, IISER Kolkata, Mohanpur, west Bengal, 741246, India. *Multilevel wavelet approximation on the sphere.*

The dynamically adaptive multilevel approximation on the sphere is necessary to solve problems with localized structures or sharp transitions. Here we will discuss, how well a function is approximated by a multilevel wavelet expansion. In the fact that it requires very less number of wavelet coefficients to represent general functions accurately. The basic idea behind the multilevel wavelet approximation is that a function can be approximated as a linear combination of wavelets having different scales and locations. This allows compression and efficient computations. The accuracy and computational efficiency of the technique are demonstrated for an approximation of the differential operators on an adaptive spherical geodesic grid. The strength of the technique is that it can be extended easily to other curved manifolds by considering appropriate coarse approximations to the desired manifold. (Received August 27, 2018)