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**Daniel Hans Lenz\***, daniel.lenz@uni-jena.de. *Eigenfunction expansions for general Laplacians.*

We provide an expansion in generalized eigenfunctions for self-adjoint operators on a separable Hilbert space. In our setting a suitable space of generalized eigenfunctions to a fixed energy is given a Hilbert space structure yielding a direct integral decomposition of the original Hilbert space. For Laplacians on graphs and more generally metric measure spaces we can study decay properties of a natural orthonormal basis of generalized eigenfunctions for each fixed energy. (Based on joint work with Alexander Teplyaev) (Received June 28, 2011)