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Veronika Furst* (vfurst@math.arizona.edu), Dept. of Mathematics, University of Arizona, 617 N. Santa Rita Ave., P.O. Box 210089, Tucson, AZ 85721. *A characteristic equation of semiorthogonal Parseval wavelets*. Preliminary report.

A Parseval (multi)wavelet in $L^2(\mathbb{R})$ is characterized by two requirements of its Fourier transform; the characterization of a semiorthogonal Parseval wavelet requires an additional condition of the wavelet dimension function. In this talk, we use the theory of generalized multiresolution analyses (GMRAs) to characterize Parseval wavelets in an abstract Hilbert space \mathcal{H} . In the context of integrable GMRAs, we show that of the statements (i) Ψ is a Parseval wavelet for \mathcal{H} , (ii) Ψ is semiorthogonal, and (iii) Ψ satisfies a given characteristic equation, any two imply the third. The equation of part (iii) is the abstract analog of the combination of the two characteristic equations and the dimension function condition in $L^2(\mathbb{R})$. (Received September 26, 2006)