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**Alexander Powell\*** ([alexander.m.powell@vanderbilt.edu](mailto:alexander.m.powell@vanderbilt.edu)), Vanderbilt University,  
Department of Mathematics, 1326 Stevenson Center, Nashville, TN 37240. *Time-frequency mean  
and variance sequences of orthonormal bases.*

We consider a question on how general orthonormal bases for  $L^2(\mathbb{R})$  "cover" the time-frequency plane. We show that there exists an orthonormal basis for  $L^2(\mathbb{R})$  such that its time means, frequency means, and time variances are all uniformly bounded. On the other hand, we show that it is not possible to have an orthonormal basis whose time variances, frequency variances, and time means are all uniformly bounded. (Received September 12, 2005)