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**Magda Peligrad\***, Department of Mathematical Sciences, POBox 210025, Cincinnati, OH 45221-0025, and **Wei-Biao Wu**. *Central Limit Theorem for Fourier Transforms of Stationary Processes*.

We consider asymptotic behavior of Fourier transforms of stationary ergodic sequences with finite second moments. We establish the central limit theorem (CLT) for almost all frequencies and also the annealed CLT. The theorems hold for all regular sequences. Our results shed new light on the foundation of spectral analysis and on the asymptotic distribution of periodogram, and it provides a nice blend of harmonic analysis, theory of stationary processes and theory of martingales. (Received August 30, 2009)