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Friday, March 9, 2012
 3:30 p.m. Arts 263
 University of Saskatchewan

**OSCILLATORY PHENOMENON IN A SCALING LIMIT FOR THE
 PERIODIC LINEAR SCHRÖDINGER EQUATION**

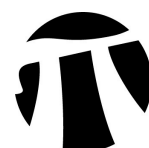
In the 1830s Henry Fox Talbot discovered a self-imaging phenomenon in coherent illumination of a periodic diffraction grating. Since then, studies of the Talbot effect (as it is called) have themselves recurred frequently. One such incarnation was initiated by Michael Berry; eventually some interesting fractal dimension results were proven by subsequent researchers. I will explain some of these connections, and some recent developments concerning oscillatory phenomena reminiscent of Gibbs' phenomenon. In passing I will explain some possible misconceptions concerning the discovery of Gibbs' phenomenon. The main mathematical connection is that the Fourier series solution is quite directly related to exponential sums appearing in classical analytic number theory.

Joint work with Nigel Pitt.



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