PHYSICS AND ASTRONOMY
COLLOQUIUM

Dr. Ian Putnam

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"Some of the Mathematics of Quasicrystals"

Abstract

During the 1960's and 1970's, a new class of mathematical patterns were discovered which displayed a high degree of regularity without being periodic. More surprisingly, in 1980, Daniel Shechtman discovered physical solids, now called quasicrystals, whose atomic arrangements displayed exactly the same properties. My aim in this talk is not to describe the physics of these materials, but rather some of the mathematics which has been used to describe and classify the patterns. Although I will be biased by my own interests, this will cover a very broad range, including operators on Hilbert space, non-commutative geometry, fractals and even algebraic topology. Along the way, I will try to describe some motivations from physics for their study.

Wednesday, January 28, 2015
3:30 p.m.
Bob Wright Centre
Room A104