

Friday, March 4, 2016**4:10 – 5:00 PM****EPS103****Quantum magnetism in low dimensions: an intriguing phenomenon
connecting biology with physics****Dr. Yi-Kuo Yu****National Center for Biotechnology Information and
National Institutes of Health**<http://www.ncbi.nlm.nih.gov/CBBresearch/Yu/>**Abstract:**

Magnetism is important in biology, physics and material science. For example, many migratory animals (birds, whales and sea turtles) use magnetism to sense direction and computer hard drives store information via magnetism. Theories of magnetism often consider simplified, low-dimensional systems, with magnetic moments of spin $S = \frac{1}{2}$. Real systems in nature, however, generally possess magnetic moments with $S > \frac{1}{2}$, which are harder to describe in theoretical treatments. To gain a better understanding, we studied some simple one-dimensional antiferromagnetic spin systems for a range of S values and some systems with $S > \frac{1}{2}$ containing $S = \frac{1}{2}$ "impurities." The results shed light on fundamental questions in nature and long-standing problems in physics.

Host: John Neumeier, MSU Department of Physics***** Refreshments served in the EPS second floor atrium at 3:45 *****