Quantization and Superization

by

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Abstract: Differential geometry and Lie theory have traditionally provided the mathematical framework for our most intuitive physical theory: classical mechanics. However, in the last century physicists developed newer theories which incorporate different kinds of symmetries, and bold concepts like the uncertainty principle arose which needed to be addressed mathematically. Mathematical physicists’ response has been a constant search for methods of quantization and superization, thus allowing the integration of older techniques into these newer, broader theories. This talk will explain one part of this story in more detail. In particular we will describe super quantum group theory, an eclectic collection of theorems and conjectures whose development is very much still in progress, but one that promises a solution to some foundational questions in mathematical physics. The mathematical background needed is limited, the physical background needed is none; the main prerequisite for this talk is a curious mind which is willing to accommodate some occasional vague language.

About the speaker: Gizem Karaali earned an undergraduate degree in electrical engineering from Boğaziçi University, in her home country of Turkey. She completed her Ph.D. in mathematics at U.C. Berkeley. After postdoctoral work at UC Santa Barbara, she came to Pomona College in 2006. She is a Project NExT fellow, a NSA Young Investigator Award recipient, and a founding editor of the Journal of Humanistic Mathematics.

Wednesday, September 28, 2011, at 4:15pm
Millikan Auditorium, Pomona College
Refreshments at 3:45 p.m. & wine and cheese after the talk in Harry’s Room

The dinner will be hosted by Prof. Stephan Garcia.