The Math/Stats Colloquium
Department of Mathematics and Statistics
**San José State University**

John de Pillis
UC Riverside

Linear Algebra as a Natural Language
for Special Relativity and Its Paradoxes

OCTOBER 14, 2016, MH320

Abstract: Using basic linear algebra and original animations, while assuming very little knowledge of physics, we present a novel derivation of the Lorentz transformation. Through the geometry of Minkowski diagrams, we analyze properties and paradoxes of special relativity, such as the Twin Paradox, in which one twin leaves Earth in a fast rocket ship and returns to Earth after 50 years having aged only 30 years, and the Bug-Rivet Paradox, in which relativity can cause time reversal in the sense that effect occurs before cause.

Background: One course in linear algebra.
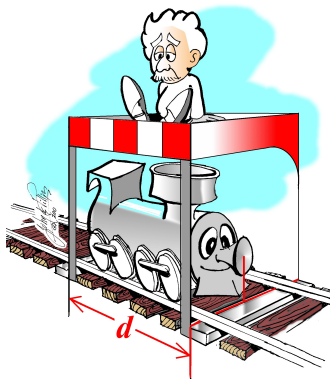
About the speaker: John de Pillis is a Professor Emeritus of Mathematics at UC Riverside, where he taught numerical analysis, computer science, and CGI. He is the author of *777 Mathematical Conversation Starters* and *Illustrated Special Relativity Through Its Paradoxes*, and he is both a private pilot and a trained illustrator.

SNACKS IN MH331B: **2:00 pm**
TALK STARTS: **2:30 pm**

For more information, see our full schedule at:

http://www.math.sjsu.edu/~hsu/colloq/