



University of
Science & Technology

Mathematics and Statistics Department Colloquium

Tuesday, March 15, 2016, 4:00 - 5:15 pm
G5 Rolla Building

- Refreshments at 4:00 followed by the lecture at 4:15 •
-



Berenice Damasceno
Luciano Barbanti

São Paulo State University, Ilha Solteira, Brazil

Time Scales in Higher Dimensions and the Green, Gauss, and Stokes Theorems

Abstract: We consider an n -dimensional time scale \mathbb{T}_n as a nonempty closed subset of \mathbb{R}^n . For each n , we will be defining an n -tuple integral as well as a line integral of a vector field (conservative or not) along a curve in \mathbb{T}_2 . Further, we will give Green's theorem, the divergence theorem, and Stokes' theorem in \mathbb{T}_2 . After we define the surface integral in \mathbb{T}_3 , we prove in this setting the theorems of Gauss and Stokes.

Biographical Sketch: Professor Berenice Camargo Damasceno has received her PhD at Université de Metz in France (1999). After that, she worked at the Technical Superior Institute of the State of São Paulo and at the University of Sorocaba, before moving to São Paulo State University (UNESP) in Ilha Solteira in 2004. Professor Luciano Barbanti's PhD studies were at the University of Florence in Italy (his advisor was Professor Roberto Conti) and at the University of São Paulo in Brazil (1980). He was a postdoc at the Academy of Sciences in Czech Republic, at the Academy of Sciences in Hungary, at Virginia Tech, and at the Technical University of Sofia. He held a position at the University of São Paulo until 2008, when he retired from there and joined UNESP in Ilha Solteira. Professors Damasceno and Barbanti have authored numerous papers together, in areas such as calculus of variations and optimal control, optimization, functional analysis, integral equations, mechanics of particles and systems, operator theory, ordinary differential equations, real functions, systems theory, and control. Since 2009, they have been interested in time scales calculus. This joint paper, which will be about their recent results in time scales calculus, will be presented by Professor Barbanti.