BAMA 5

School Year 2009—2010

Join us for a free talk...

Federico Ardila

Matroids as a Theory of Independence

Santa Clara University*, Daly Science 206

Wednesday, February 10, 7:30 pm

Consider the following three questions:

- If all people in a town make a list of people whom they are willing to marry, what is the largest possible number of marriages that could take place?
- Let $a = x^2 + y^2$, $b = x^3 + y^3$, and $c = x^4 + y^4$. Is there a polynomial equation with constant coefficients satisfied by a, b, and c?
- How do we build the cheapest road system connecting all the cities in a country, if we know the cost of building each road between two cities?

To answer these questions, mathematicians in very different areas were led to the discovery of "matroids". This talk will give a brief introduction to these objects.

Federico Ardila was born and grew up in Bogotá, Colombia. He received his Ph.D. from the Massachusetts Institute of Technology under the supervision of Richard Stanley. He is an assistant professor at San Francisco State University and an adjunct professor at the Universidad de Los Andes in Bogotá. In his research, he studies objects in algebra, geometry, topology, and phylogenetics by understanding their underlying combinatorial structure.

For 15 years, he has been very involved with the Colombian and International Mathematical Olympiads, through which he first found an interest in mathematics. He now leads the SFSU-Colombia Combinatorics Initiative, a research and learning collaboration between students in the US and Colombia.

When he is not at work, you might find him on a soccer field, treasure hunting in little record stores, learning a new percussion instrument, or exploring the incredible San Francisco Bay Area.

*** See back for map and directions.**