

*Department of Mathematics,  
University of California, San Diego*

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# **Math 295 - Mathematics Colloquium**

**Prof. Richard Palais**

University of California, Irvine

## **Some Applications of Geometry to Computer Graphics—Payback**

### **Abstract:**

For more than a dozen years I have been interested in Mathematical Visualization. This is the process of creating computer realizations of mathematical objects and then displaying them on a computer screen. For the most part, creating the computer “avatar” of the mathematical object is the “hard” and interesting part, and then displaying it comes relatively easily. But this is only because the field of Computer Graphics has developed many powerful and efficient algorithms that we can borrow and adapt for the display process. For the most part I have been a “consumer”, but along the way I have noticed several places where quite sophisticated concepts from geometry can markedly improve the algorithms currently used in computer graphics, and in this talk I will discuss two of these. The first is how most efficiently to use a mouse to rotate a three-dimensional object on a computer screen. The second is how to sprinkle a large number of points on a surface embedded in three-space. Here, “sprinkle” means that the number of points in any region of the surface should be proportional to its area.

Hosts: Lei Ni and Nolan Wallach

**Thursday, February 11, 2010**

**4:00 PM**

**Cancelled**

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