

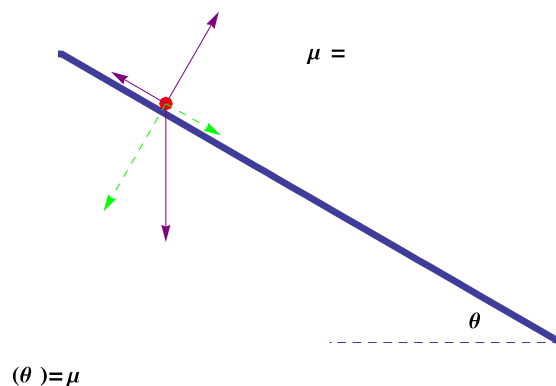
**CCSU**  
**DEPARTMENT OF MATHEMATICAL SCIENCES**  
**COLLOQUIUM**

Friday, March 15  
2:00 – 3:00 PM  
Maria Sanford, Room 101

**FRICION KEEPING CONSTANT SPEED**

**OSCAR PERDOMO**  
**CENTRAL CONNECTICUT STATE UNIVERSITY**

**Abstract:** It is easy to show that if the coefficient of kinetic friction between a block and a ramp is  $\mu$  and this ramp is a straight line with slope  $-\mu$  then, this object will move along the ramp with constant speed. See picture below. A natural question to ask is the following: Besides straight lines, are there more shapes of ramps such that a block will go on the ramp with constant speed. In this talk we classify all the possible shape of these ramps and, *surprisingly*, we will show that these curves can be parametrized in term of elementary functions: trigonometric function, exponential functions and their inverses. They provide basic examples of explicitly parametrized arc-length parameter curves. The talk is very basic. Students taking courses as differential equation, dynamics or statics are encouraged to come.



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