Oct. 21  **Mauricio Velasco**, UCB

*Two results on the Cox rings of rational varieties*

The Cox ring of an algebraic variety $X$ fits in the following analogy: $\text{Cox}(X)$ is to $X$ as the ring of polynomials $k[x_0, \ldots, x_n]$ is to projective space $\mathbb{P}^n$. It is known that the Cox ring of $X$ is a polynomial ring if and only if $X$ is Toric and that there is a large class of varieties, the so called Mori Dream Spaces, whose Cox rings are finitely generated algebras.

I am interested in the following two questions:

1. Which algebraic varieties are Mori dream spaces?
2. How to construct presentations for the Cox rings of Mori Dream Spaces?

In this talk I will describe recent progress in these two questions for some rational varieties: a Theorem stating that every rational surface with Big anticanonical divisor is a Mori Dream Space (with D. Testa and A. Varilly-Alvarado) and work (with B. Sturmfels) on the defining ideals of the Cox rings of blow-ups of $\mathbb{P}^n$ at $n + 3$ general points and its relationship with spinor varieties generalizing work of Serganova and Skorobogatov on Del Pezzo surfaces.