SEMINARIO DI GEOMETRIA

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Politecnico di Torino,
Dipartimento di Scienze Matematiche,
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Mori Dream Spaces obtained by blowing-up points in projective spaces

The goal of the minimal model program is to construct a birational model of any complex projective variety which is as simple as possible in a suitable sense. This subject has its origins in the classical birational geometry of surfaces studied by the Italian school. In 1988 S. Mori extended the concept of minimal model to 3-folds by allowing suitable singularities on them. In 2010 there was a great breakthrough in the minimal model theory when C. Birkar, P. Cascini, C. Hacon and J. McKernan proved the existence of minimal models for varieties of log general type.

Mori Dream Spaces, introduced by Y. Hu and S. Keel in 2002, form a class of algebraic varieties that behave very well from the point of view of Mori's minimal model program. They can be algebraically characterized as varieties whose total coordinate ring, called the Cox ring, is finitely generated.
In addition to this algebraic characterization there are several algebraic varieties characterized by some positivity property of the anti-canonical divisor, such as weak Fano and log Fano varieties, that tourn out to be Mori Dream Spaces. In this talk, I will show how to obtain log Fano varieties and Mori Dream Spaces by blowing-up projective spaces in a certain number of general points. This is a work in progress with Carolina Araujo.