

## SEMINARIO DI GEOMETRIA

23 Gennaio 2013, h.11.00-12.00

Politecnico di Torino,  
Dipartimento di Scienze Matematiche,  
AULA BUZANO

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Flat families and smoothability of finite subschemes of  $\mathbb{P}^n$

After recalling the notions of Hilbert scheme and smoothability I will concentrate on proving the flatness of a given module. There are numerous criterions for flatness; I will prove one, regarding filtered modules, which does not require a local setting. Despite the theory, most results on smoothability are still obtained in elementary, slightly computational ways. I will sketch a proof in this flavour, showing that the Gorenstein algebras with Hilbert function  $(1, 5, 5, 1)$  are smoothable.