

## SEMINARIO DI GEOMETRIA

28 ottobre 2015, h.15,00-16.00

Politecnico di Torino,  
Dipartimento di Scienze Matematiche,  
AULA BUZANO

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Tilting theory, quivers and Auslander - Reiten quivers:  
something for everyone.

In the first part of my talk I will describe with few words and many pictures some more or less combinatorial results on tilting modules, bimodules and complexes, almost always obtained by means of elementary tools of two types:

- Linear Algebra arguments (that is, comparison of the dimensions of the underlying vector spaces of certain Hom and Ext groups);
- Representation Theory arguments (that is, analysis of the Auslander- Reiten quivers of suitable finite dimensional algebras, almost always admitting only finitely many indecomposable modules up to isomorphism).

In the second part of my talk I will describe other results (suggested by quivers) concerning reflexive modules (not necessarily belonging to the tilting and cotilting worlds) and multiplicities of simple modules in the socle of certain injective cogenerators. Almost all the results and examples are illustrated in two preprints available at <http://arxiv.org/abs/1401.2085> and <http://arxiv.org/abs/1411.4418>.