

## SEMINARIO DI GEOMETRIA

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Politecnico di Torino,  
Dipartimento di Scienze Matematiche,  
AULA SEMINARI

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### Geometric overdetermined differential equations and holonomy

A number of interesting geometric objects in conformal differential geometry are described by overdetermined differential equations, in particular infinitesimal symmetries, conformal Killing forms/tensors, twistor spinors and Einstein scales. Such solutions often exhibit highly interesting singularity sets, and in recent years a number of tools have been developed to study the geometric meaning of these singularities. A complete description of the geometry of the singularity has been established for particular solutions satisfying additional integrability conditions, where an intimate relationship with the notion of conformal holonomy was obtained. In the present talk I will lay out these relationships and, if time allows, also discuss recent advances which further connect the observed holonomy reductions with Fefferman-Graham ambient metrics.