Summer School on Commutative Algebra and Algebraic Geometry, September 7-10, 2014 School of Mathematics, IPM, Tehran

Jet Schemes and Resolution of Singularities Hussein Mourtada

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In this elementary course, we will introduce the jet schemes of a variety X; these are varieties which parametrize germs of curves having some tangency with X. Then we will explain the relation between jet schemes and divisorial valuations, and exploit this relation to obtain resolutions of singularities of some examples of singular varieties. Prerequisites are some familiarity with basic commutative algebra. This course is related to the course on valuations of B. Teissier.