Dr. Anne-Sophie Kaloghiros
Non-factorial Fano 3-folds

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A singular variety is Q-factorial if a multiple of every Weil divisor (a codimension 1 cycle) is a Cartier divisor (i.e. can be defined locally by one equation). Q-factoriality is a subtle topological property that depends both on the local analytic type of singularities and on their relative position. The purpose of these talks will be to study non-factorial Fano 3-folds with mild singularities. Fano 3-folds are the higher dimensional analogues of spheres, they have 'positive curvature', and as such play an important role in the Minimal Model program. I will show that one can understand to some extent how far Fano 3-folds with terminal Gorenstein singularities can be from being factorial. In the first talk, I will first give an introduction to terminal/canonical/Gorenstein singularities, and to factoriality. I will also present the Minimal Model Program for (midly singular) 3-folds. In the second talk, I will apply these techniques to the study of non-factorial Fano 3-folds.