Meeting: 1003, Atlanta, Georgia, SS 34A, AMS Special Session on Algorithmic Algebraic and Analytic Geometry, I

1003-14-119 **John J Iskra** (jiskra@ehc.edu), P.O. Box 164, 30345 Oxford Ave., Emory, VA 24327-0164, **Yasuyuki Kachi*** (kachi@math.utk.edu), Department of Mathematics, Ayres Hall, 1403 Circle Drive, Knoxville, TN 37996-1300, and **S B Mulay** (mulay@math.utk.edu), Department of Mathematics, Ayres Hall, 1403 Circle Drive, Knoxville, TN 37996-1300. *Birational Equivalence, Linear Systems, and Desingularization.*

In the talk I introduce an object Spv X which represents the birational equivalence class of an algebraic variety X and which admits a morphism to X. I define Spv (X) as a certain functor which mimics Hom (Spec (*), X) : (Ring) $\longrightarrow$ (Set). I also define its completion Spv $\hat{}(X)$, using linear systems, and show that it is the categorical limit of proper models birational to X. In the course it arises a group functor SG_n which is a uniform analog of GL_n and which reflects a composition algorithm of blow-ups. $SG_n(k)$ naturally acts on a certain classifying space of uniformizing parameters $\mathcal{S}_n(k)$. I show that the transitivity of such action is a uniform analog of Cutkosky's factorization theorem. Using SG_n, I also formulate a statement on constructibility of power series and show that it recovers the desingularization of an algebraic variety locally along a valuation. (Received August 09, 2004)