Mathematics, Statistics, and Computer Science   **@ UIC**

Joint NU/UIC/UofC algebra and geometry seminar

Equations and syzygies for varieties of binary forms

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Abstract: The space of binary forms of degree d has a natural stratification given by the factorization pattern of a form, which is indexed by the partitions of d. For instance, those binary forms that are d-th powers of a linear form trace out a rational normal curve. Those that factor as $a^{(d-1)}b$, with a, b linear forms, describe the tangent developable of the rational normal curve, etc. It is an interesting open problem to describe the defining equations of the closures of the factorization strata, as well as their higher syzygy modules. I will survey some of the known results and recent work on this problem, based on a beautiful interaction between geometry and the representation theory of SL_2.

Wednesday, August 12 at 3:00 PM in Zoom