

# Mathematics Department Colloquium

Organizer: Olga Holtz

Thursday, 4:10–5:00pm, 60 Evans

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Sep. 11     **Bernd Sturmfels**, UC Berkeley

*Powers of Linear Forms*

What is the dimension of the space of polynomials of a certain degree that are annihilated by certain powers of fixed vector fields ? We obtain explicit formulas by computing sagbi bases of Cox-Nagata rings. For del Pezzo surfaces, these rings are presented by quadratic polynomials, and, for the blow-up of projective  $n$ -space at  $n+3$  points, we get a beautiful connection between the Verlinde formula and phylogenetic algebraic geometry.