1096-37-2015 **Jan-Li Lin*** (jlin4@nd.edu). *Rational maps on* $\mathbf{P}^2$ *with invariant two form, piecewise linear maps on* $\mathbf{R}^2$*, and the rotation number.*

In this talk I will describe a joint work with Jeff Diller on the dynamics of rational maps on $\mathbf{P}^2$ with the invariant meromorphic two form $\frac{dx\wedge dy}{xy}$. Such a map induces a piecewise linear map on $\mathbf{R}^2$ which maps lattice points to lattice points. It further induces a covering self map on the circle. Assuming that the covering map is a homeomorphism, then an important dynamical property of the rational map called "algebraic stability" is closely related to the rotation number of the circle homeomorphism.

A surprising application of this connection is a new proof of a theorem of E. Ghys and V. Sergiescu: For a circle homeomorphism induced by a piecewise linear map on $\mathbf{R}^2$ preserving lattice points, its rotation number is always a rational number. (Received September 17, 2013)