

# **Fitting the Kinematics of Disk Galaxies: Towards a Model-Based Approach**

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The next generation of spectroscopic galaxy surveys will probe the spatially-resolved kinematics of unprecedented numbers of galaxies at a variety of wavelengths. Efficient, robust algorithms for extracting physically meaningful parameters from these kinematics are essential for exploiting the scientific potential of these upcoming surveys. This talk will review techniques for constraining the disk geometry, rotation curve and non-circular flows from the spatially resolved kinematics of nearby galaxies, with an emphasis on velocity field techniques. In particular, I will highlight the inherent parameter degeneracies in the standard tilted-ring algorithm, advocate for a model-based approach to velocity field fits, and present recent results on the incidence of bar-like flows in nearby galaxies using this approach. I will also report on efforts to develop a pipeline to automatically fit the kinematics of nearby galaxies that is suitable for large surveys.