Estimating the Uncertainties in the Orbits of Multi-Planet Systems

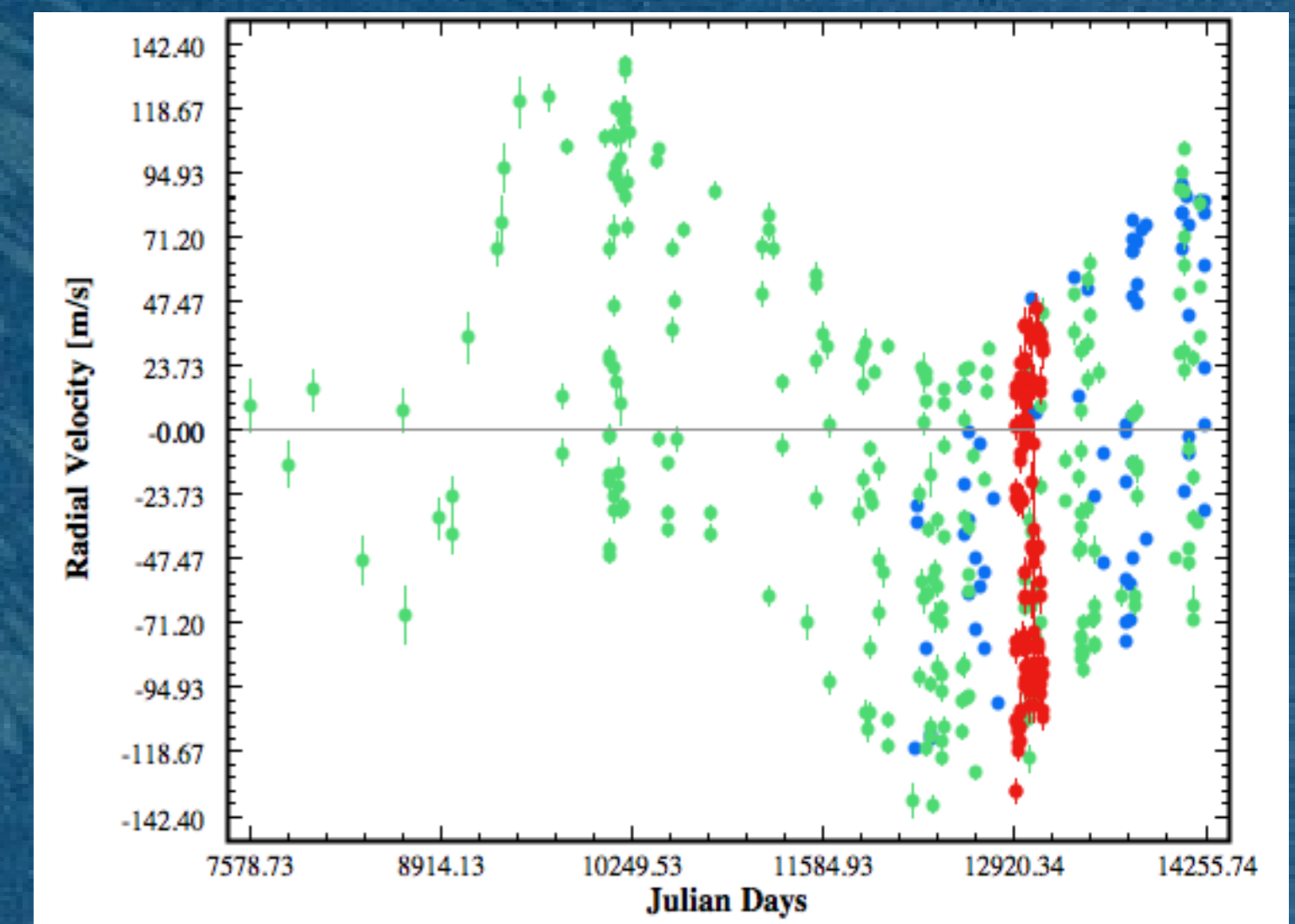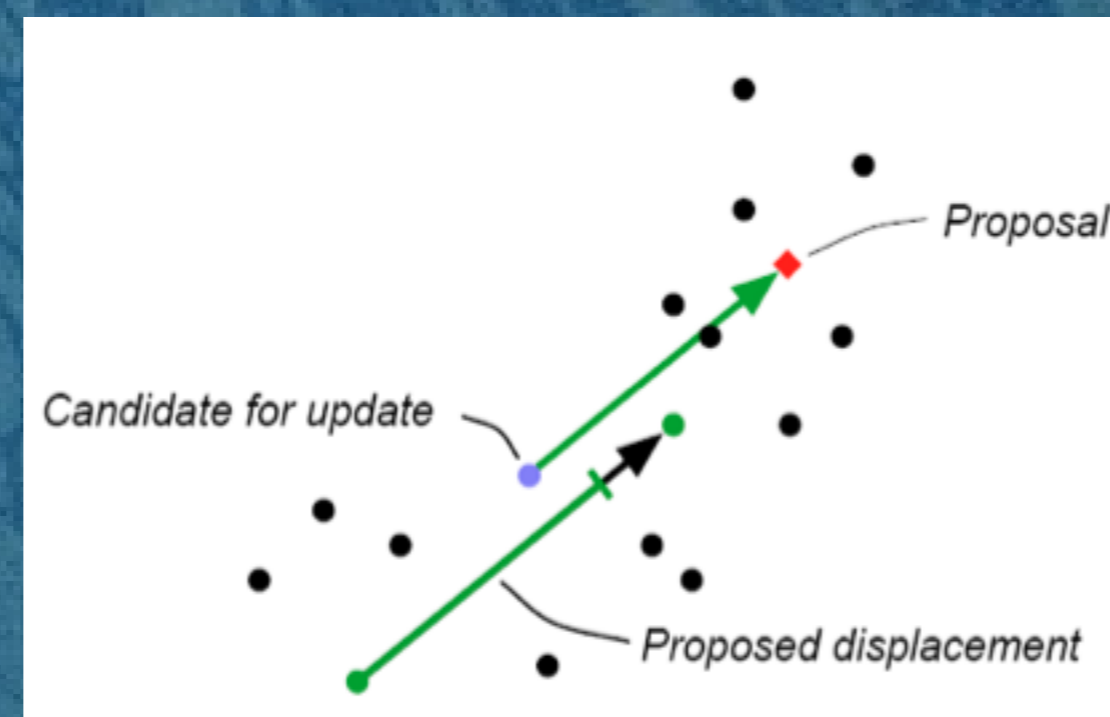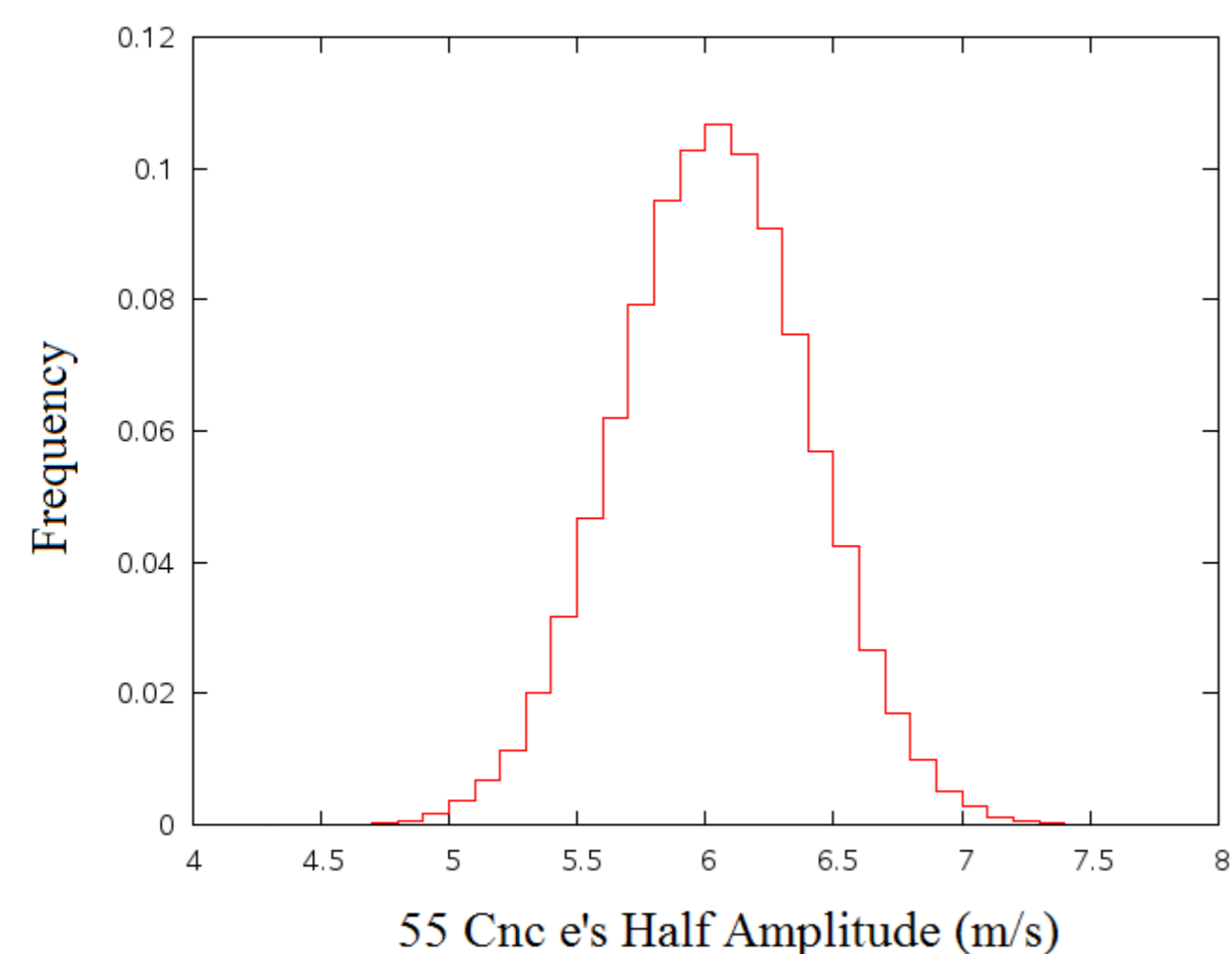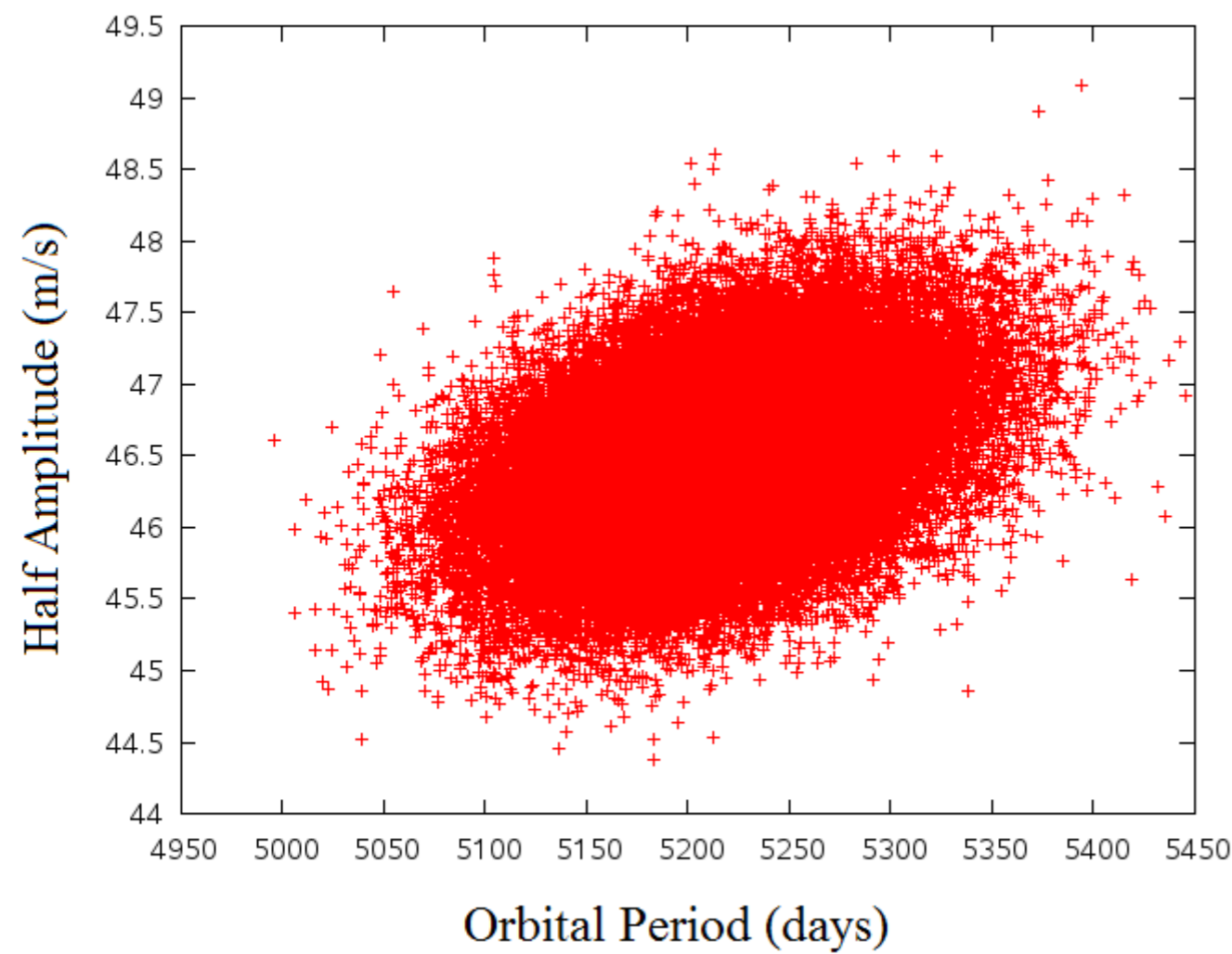Benjamin Nelson, Matt Payne, Eric Ford (University of Florida)

UF Astronomy

- applying Bayesian methods to RV observations

- Markov chain Monte Carlo (MCMC)

- particularly interested in systems with strong dynamical interactions

- designing adaptive MCMC for efficient exploration of parameter space and rapid convergence (DEMCMC)

55 Cancri

Planet	Period (Days)	Mass (Jupiter)
55 Cnc b	14.6507	0.824
55 Cnc c	44.3446	0.169
55 Cnc d	5218	3.835
55 Cnc e	0.73654	???
55 Cnc f	260.00	0.144

3:1 resonance

Jupiter Analog
Transiting

Candidate for update

Proposal

Proposed displacement