Group Presentations

Each group was assigned a particular (and different) type of planet. Tell us about your planets.

What are the μlensing properties of your planets?

- Show some plots of your planetary perturbations.
    - What microlensing features do your planets have in common?
    - Are they major image or minor image perturbations?
    - How long do the perturbations last?
- Make a plot showing the distribution of mass ratios and separations for the planets your group analyzed.
    - What is the typical mass ratio for your planets?
    - Are they inside or outside the Einstein ring?
    - Do your planets have a typical separation?

  Recommendations for plotting:
  x axis = log_s, limits = [-1, 1]
  y axis = log_q, limits = [-6, -1]

What are the physical properties of your planets?

- Assuming the lens is a 1.0 M_{Sun} G dwarf at 6 kpc, what does that mean for the physical parameters of the planet (mass and semimajor axis)?
- Repeat for a 0.3 M_{Sun} M dwarf at 6 kpc.
- For both the G dwarf and M dwarf scenarios, make a plot showing planet mass vs. physical separation for your planets.
    - Show the snow line on these plots assuming $a_{snow} = 2.7AU\ (M_* / M_{Sun})^2$
    - How do the physical parameters differ in the two cases?

  Recommendations for plotting:
  x axis = separation, limits = [0, 10]
  y axis = separation, limits = [0.01 MEarth, 10,000 MEarth]
- What kind of planets did you analyze?

Useful Equations

mass ratio = $q = m_{planet} / M_{star}$

projected separation = $a_{\perp} = s * r_E = s * \theta_E * D_{lens}$

$\theta_E = \sqrt{(\kappa * M_{star} * \pi_{rel})}$

where

κ = 8.14 mas M_{Sun}^{-1}

$\pi_{rel} = (AU / D_{lens}) - (AU / D_{source})$

and you can assume D_{source} = 8 kpc