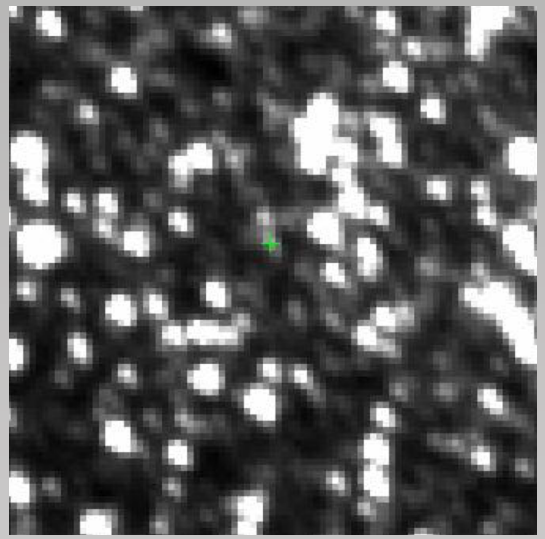
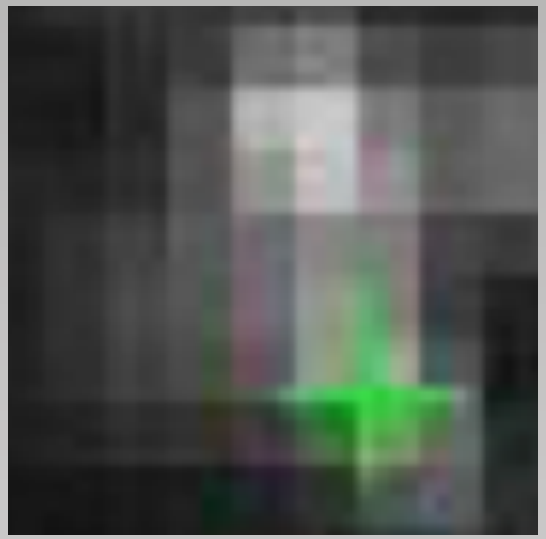
# Using AO Follow-up to Characterize Microlensing Exoplanets





**Primary Collaborators**

Chas Beichman (NExScI)
Chris Gelino (NExScI)
Yossi Shvartzvald (JPL)
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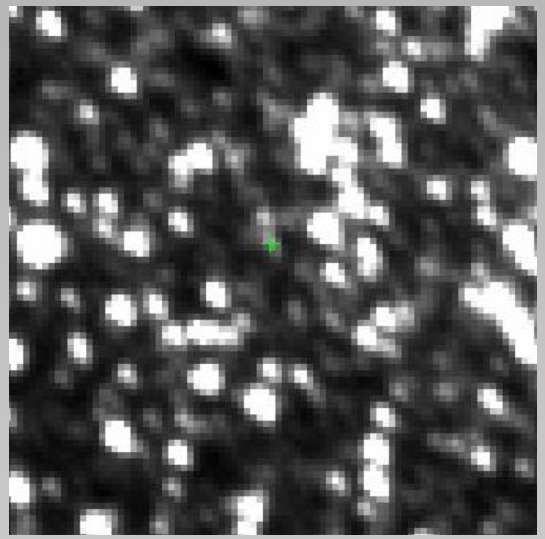

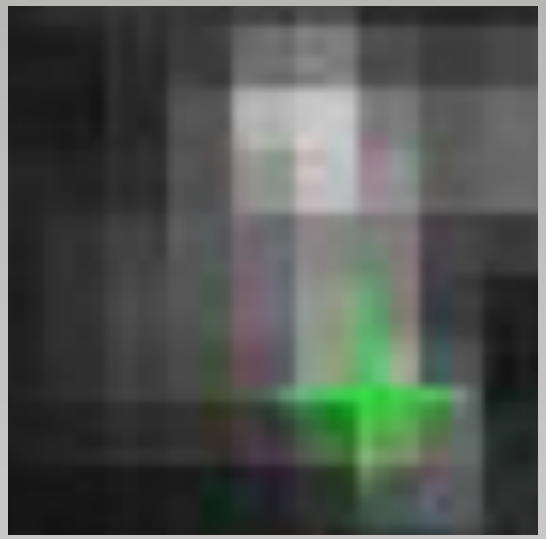

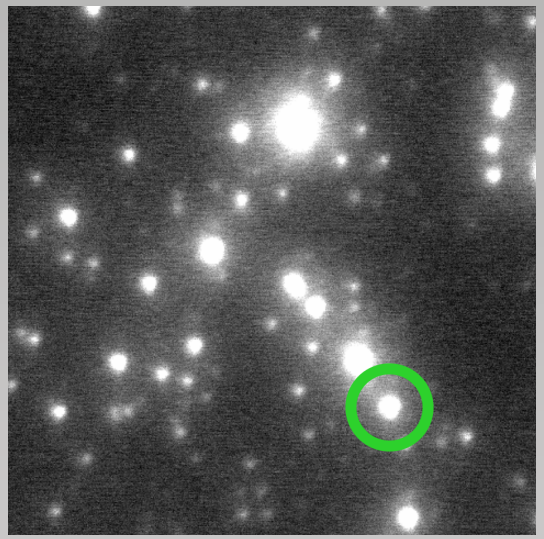

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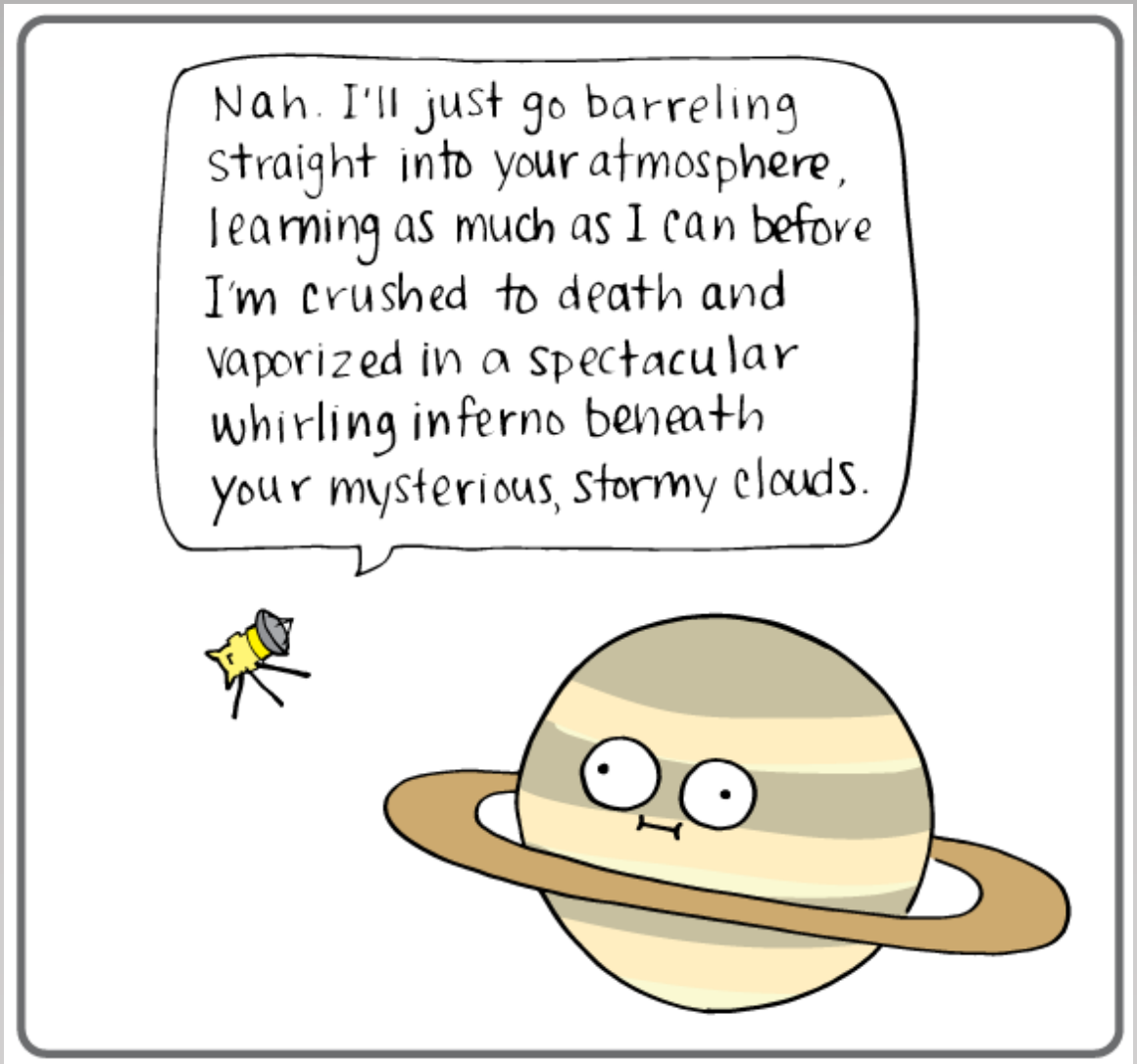
Hey Cassini, wanna come to the first day of ExSoCal 2017 and learn about microlensing?



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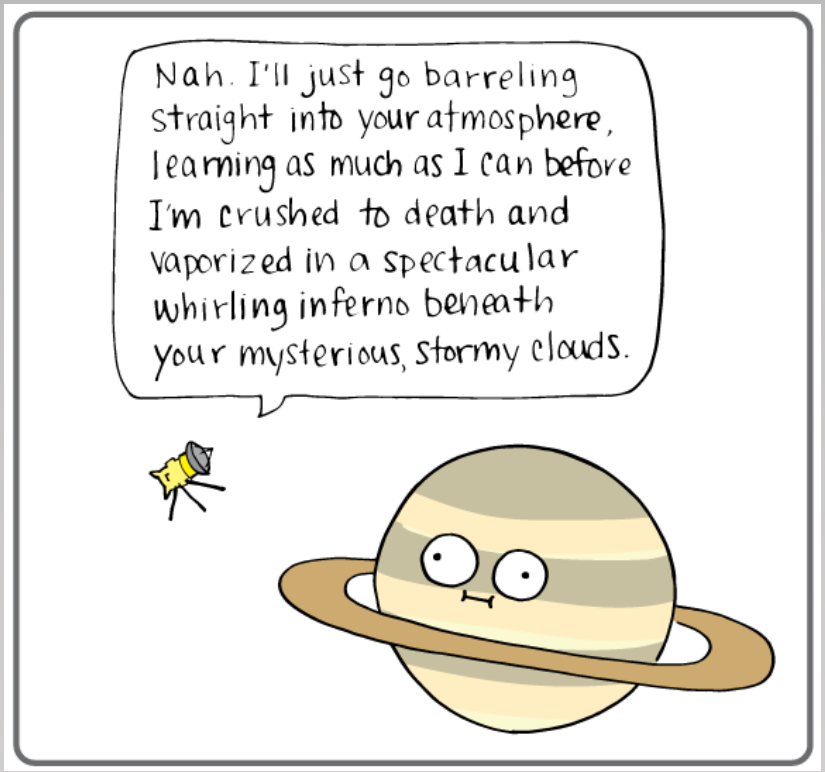


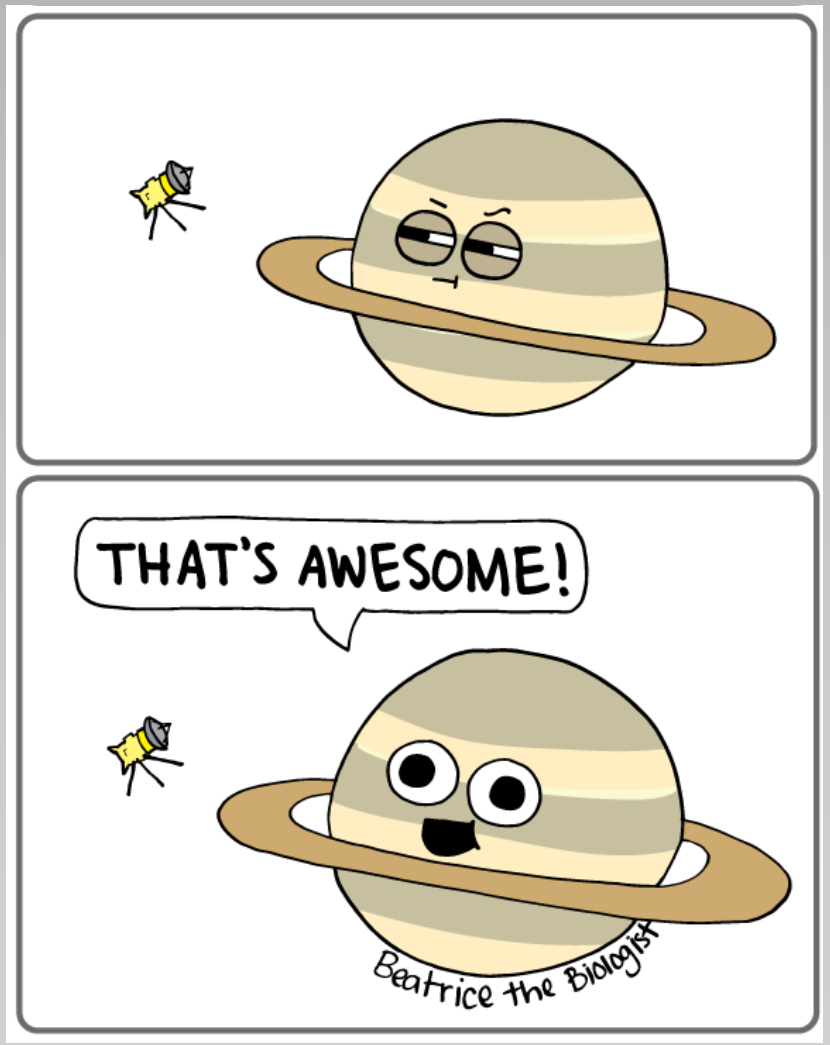


By: Beatrice the Biologist

# Microlensing Exoplanet Properties:
## Mass and Distance

**(1) Einstein Radius:**

$$M_l = \frac{(\theta_E)^2}{\kappa \pi_{rel}}$$

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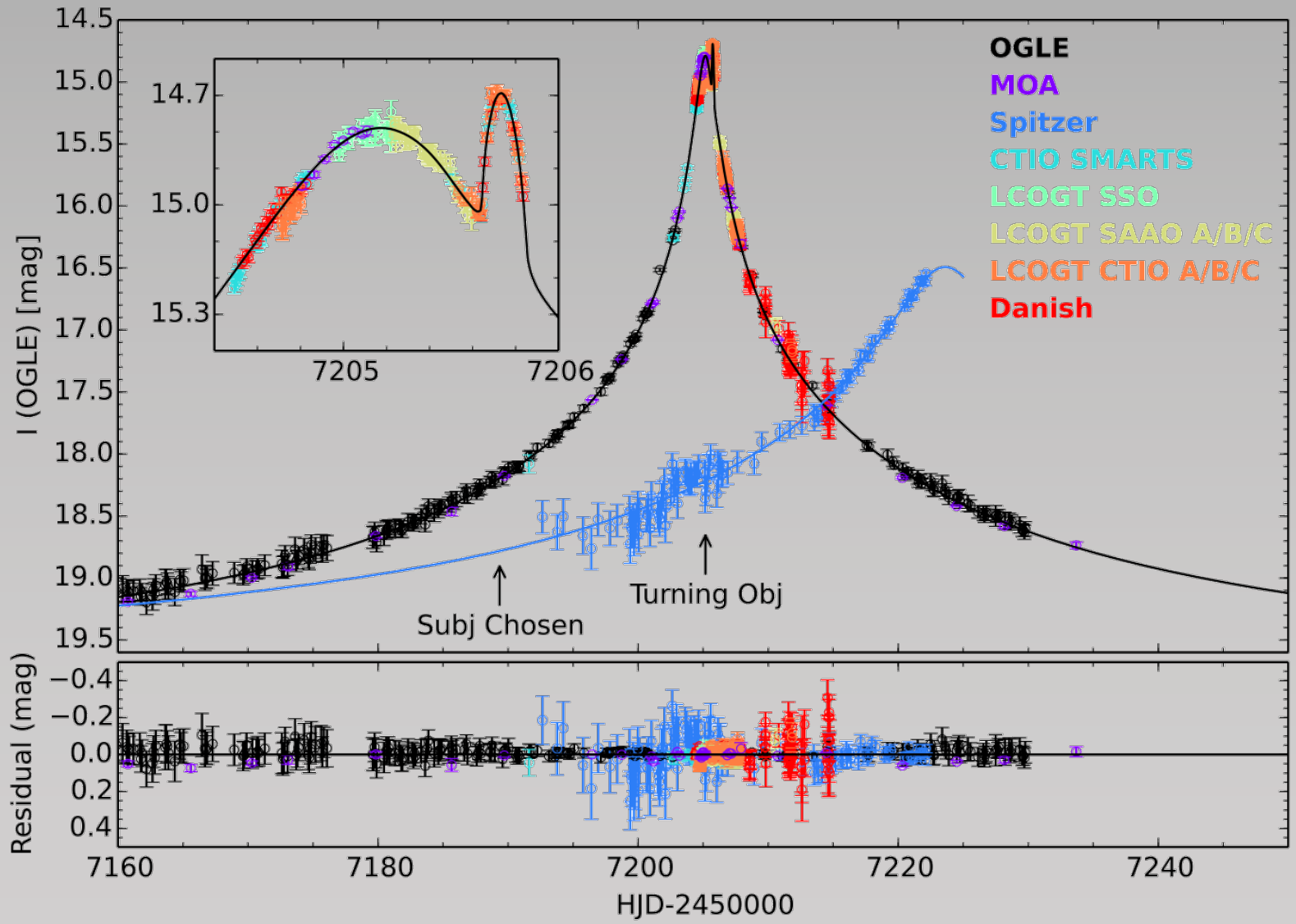
⇨ ***After* event is over!**

# OB150966: *Spitzer* target




Street+ **[incl. Henderson]** (2016) ApJ, 819, 93

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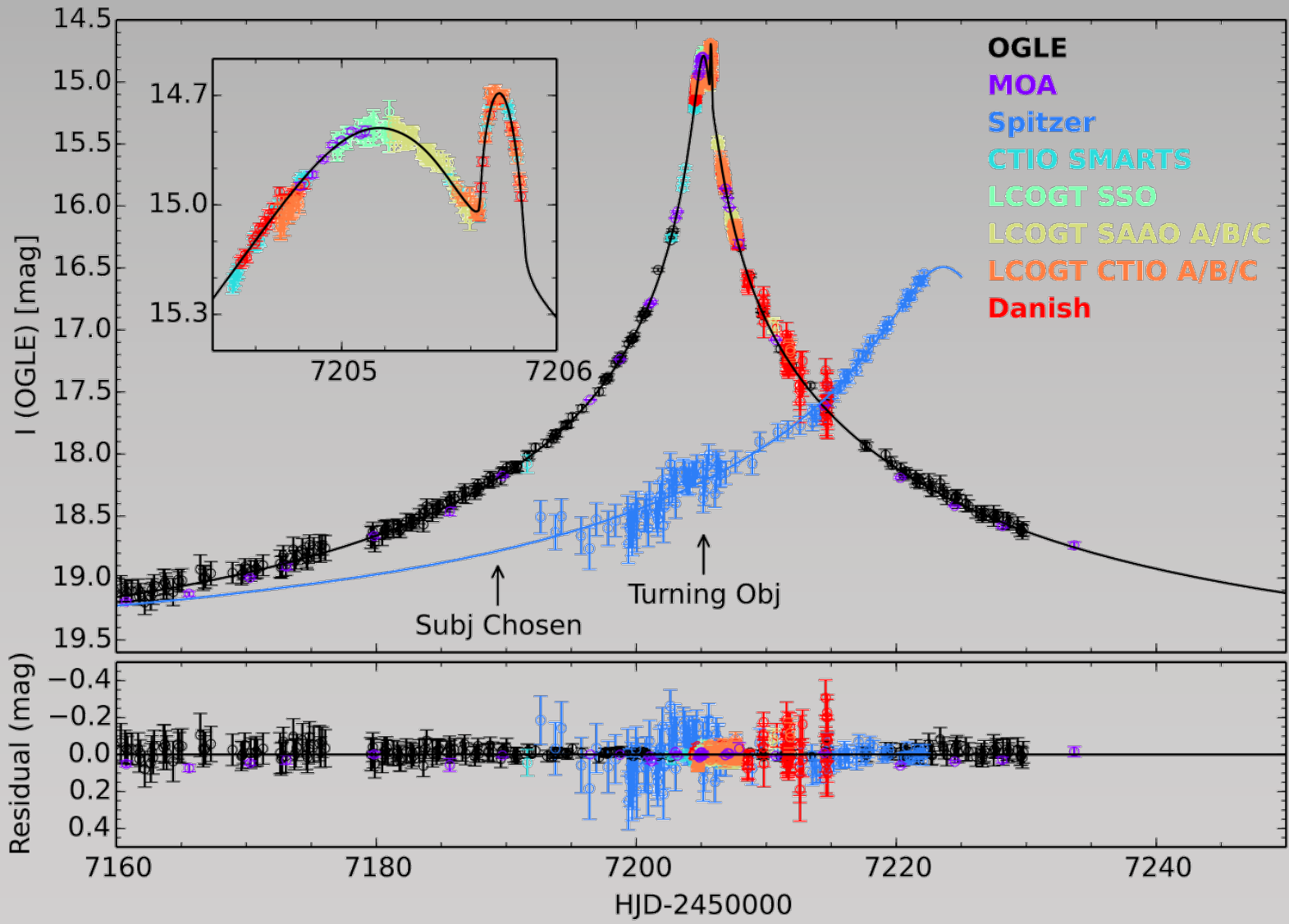


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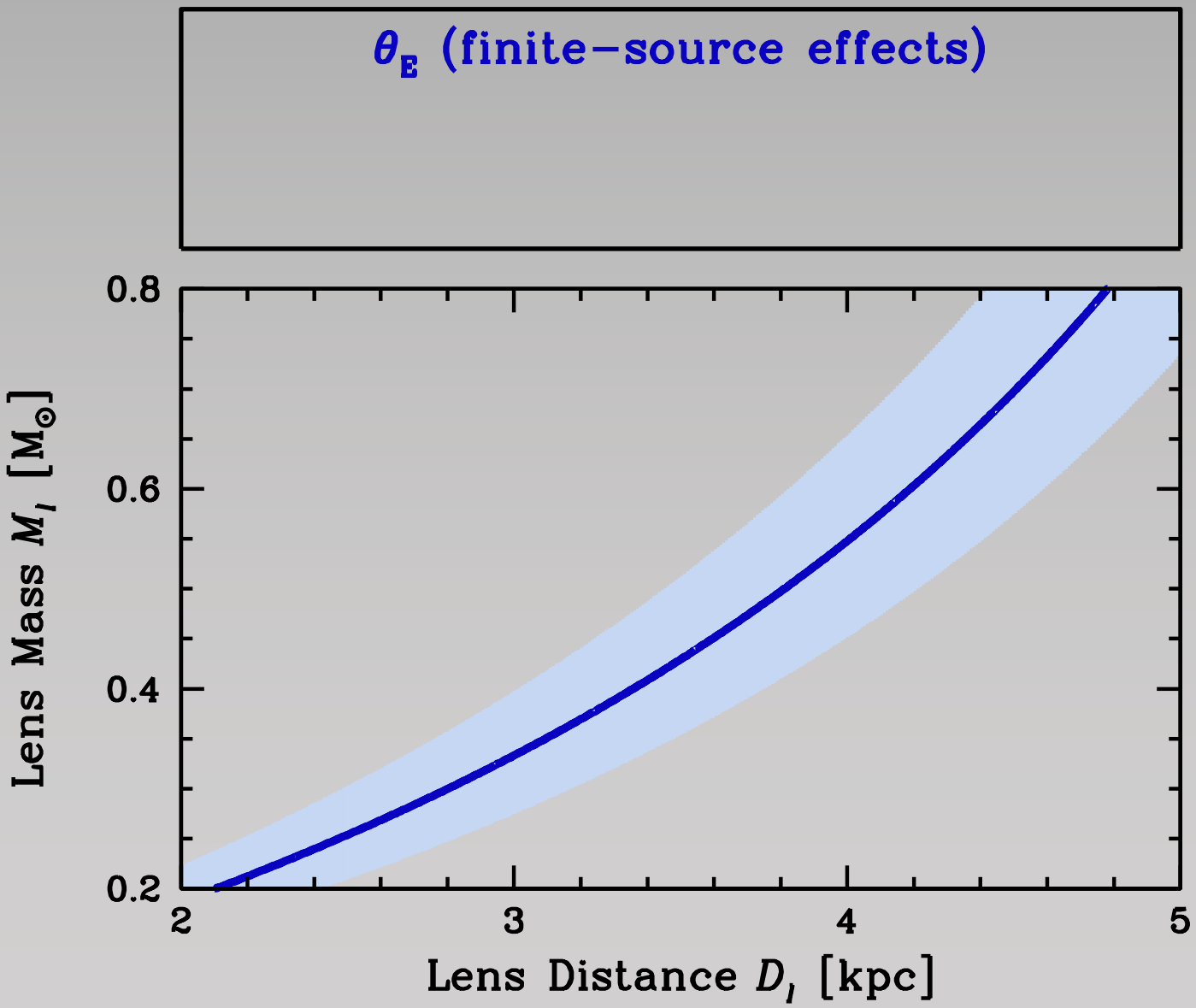
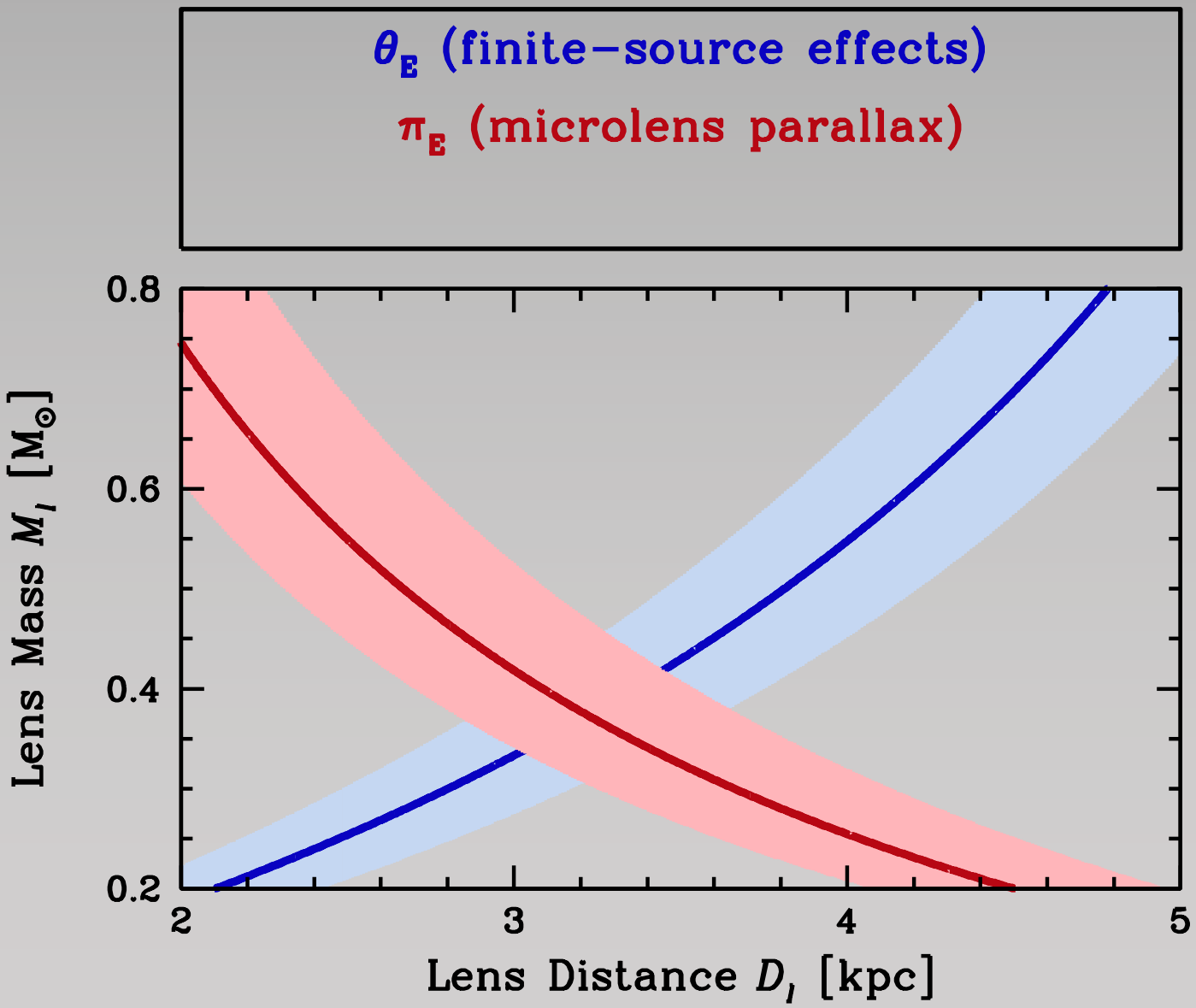


# OB150966: Mass-distance Relations (II)



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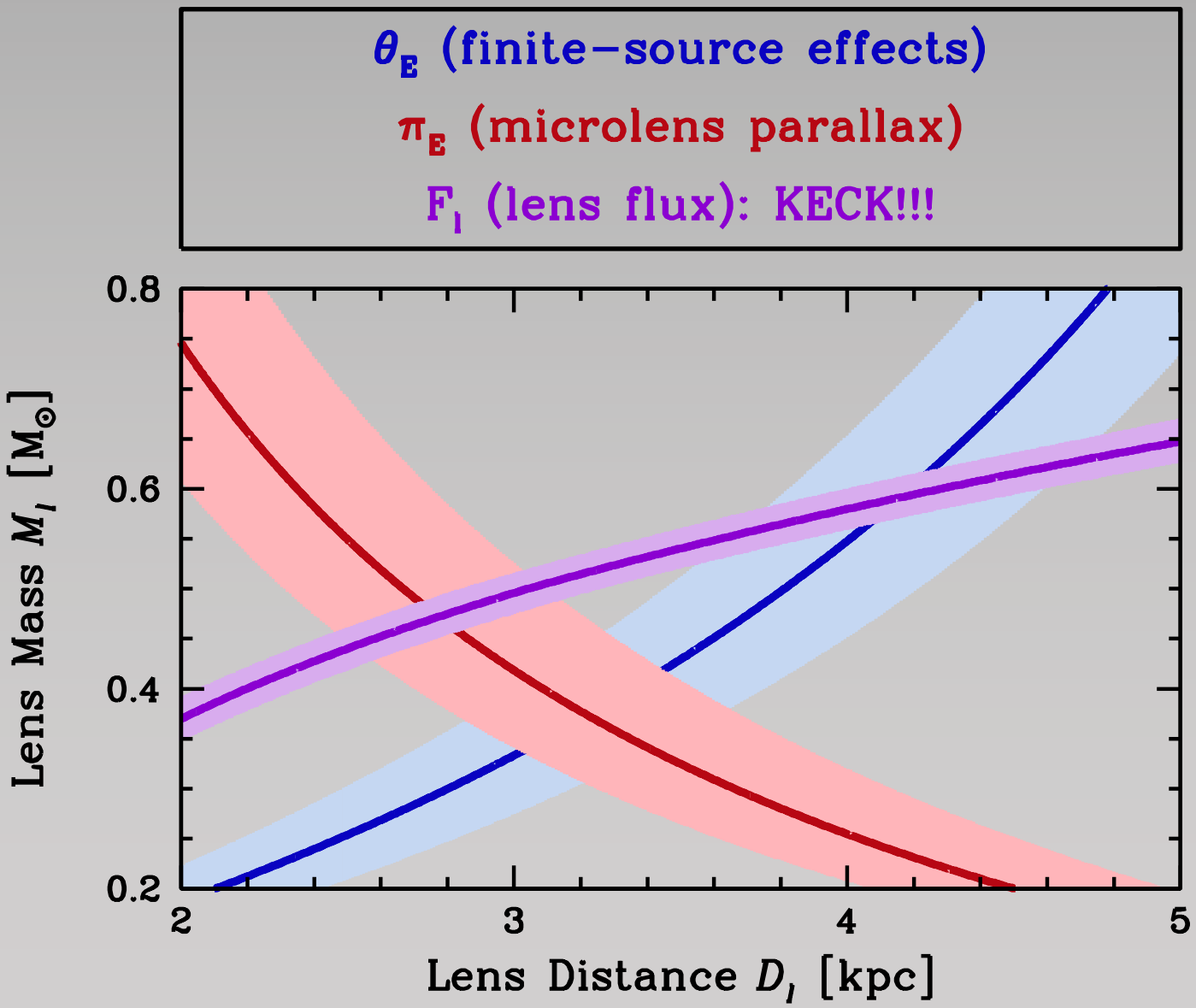
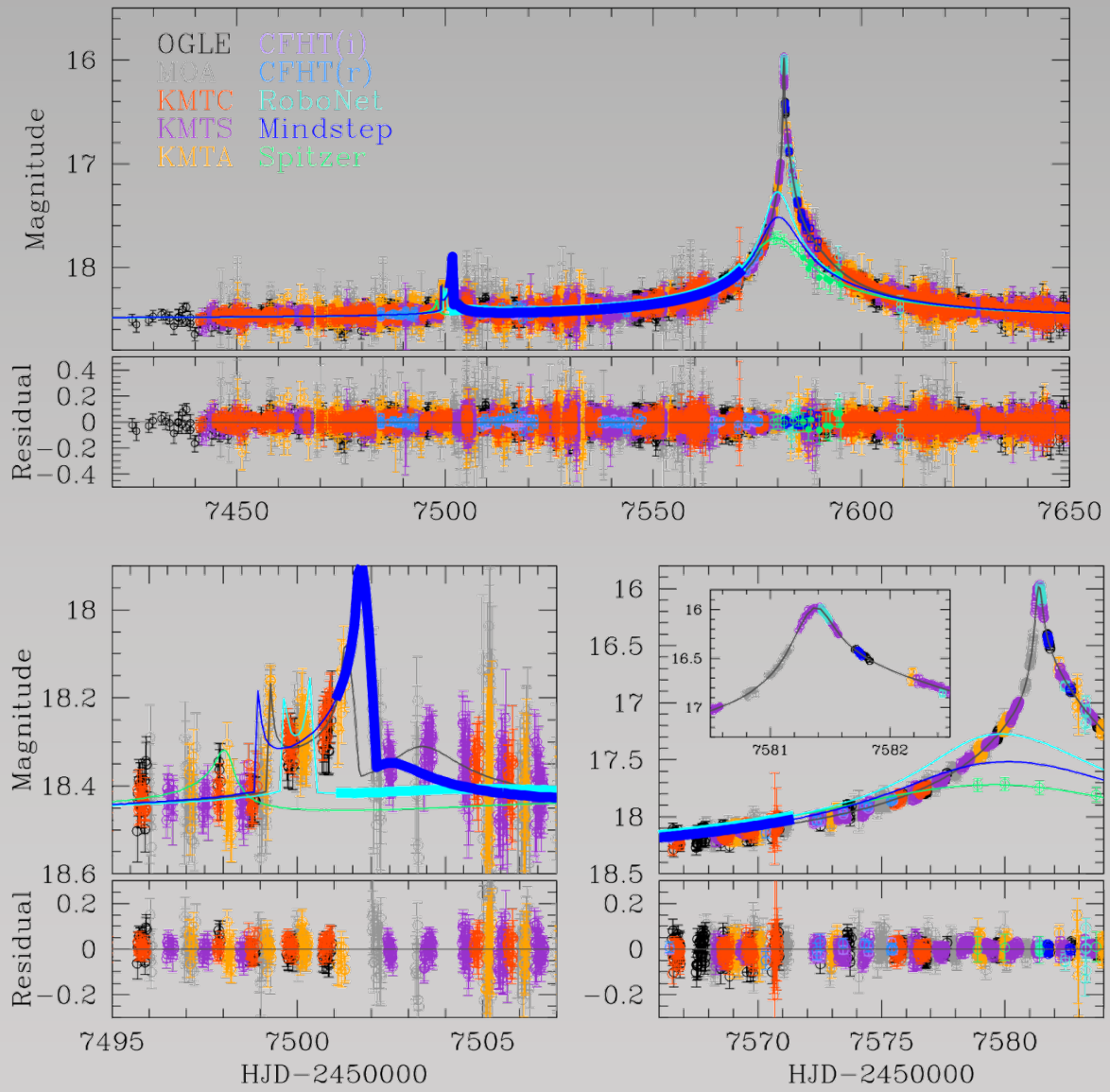


# OB161190: *Spitzer* and *K2C9*




Ryu+ **[incl. Henderson]**, in prep.

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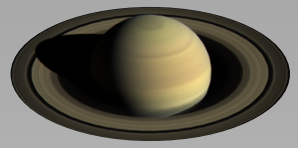
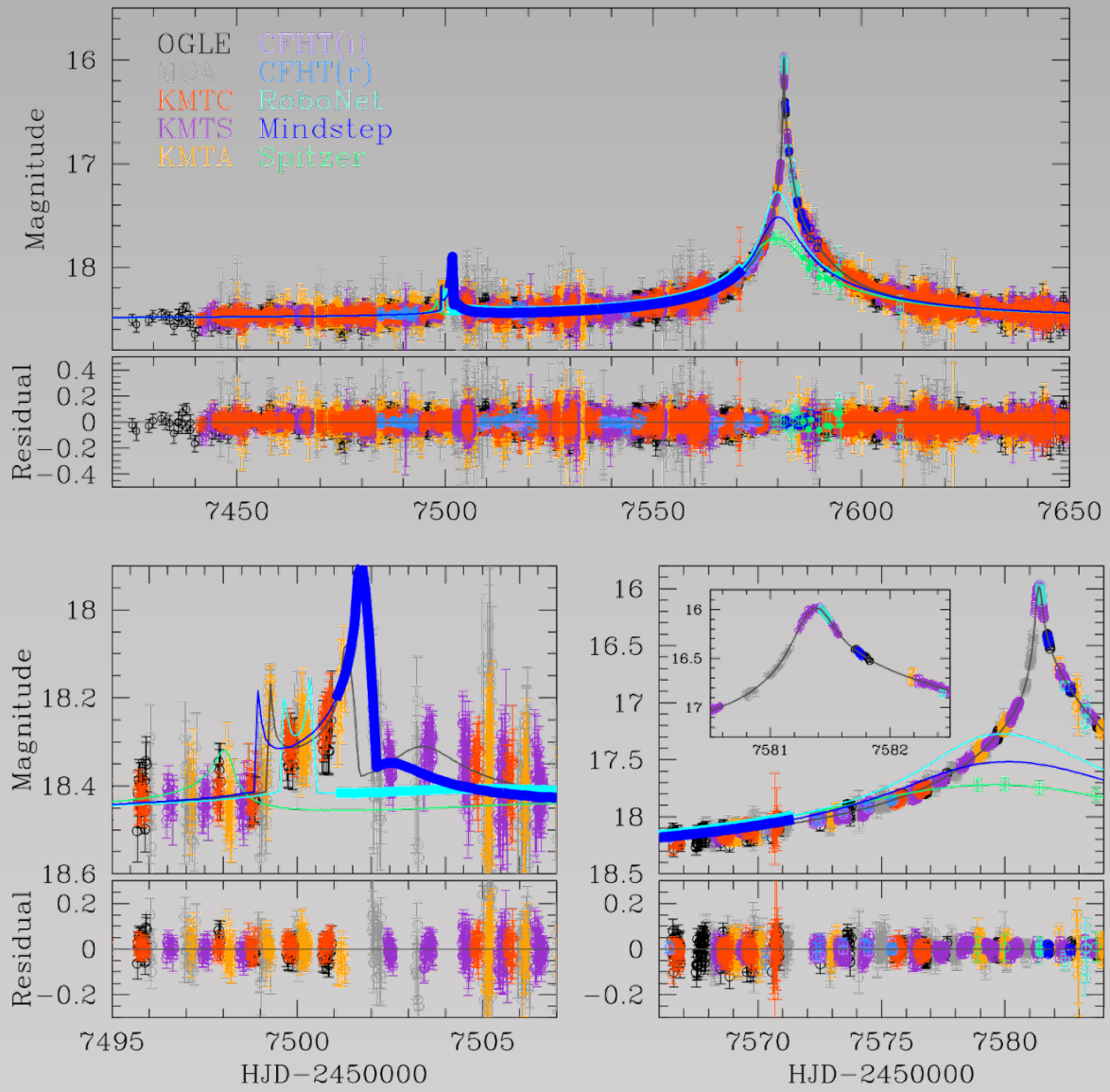


x ~45

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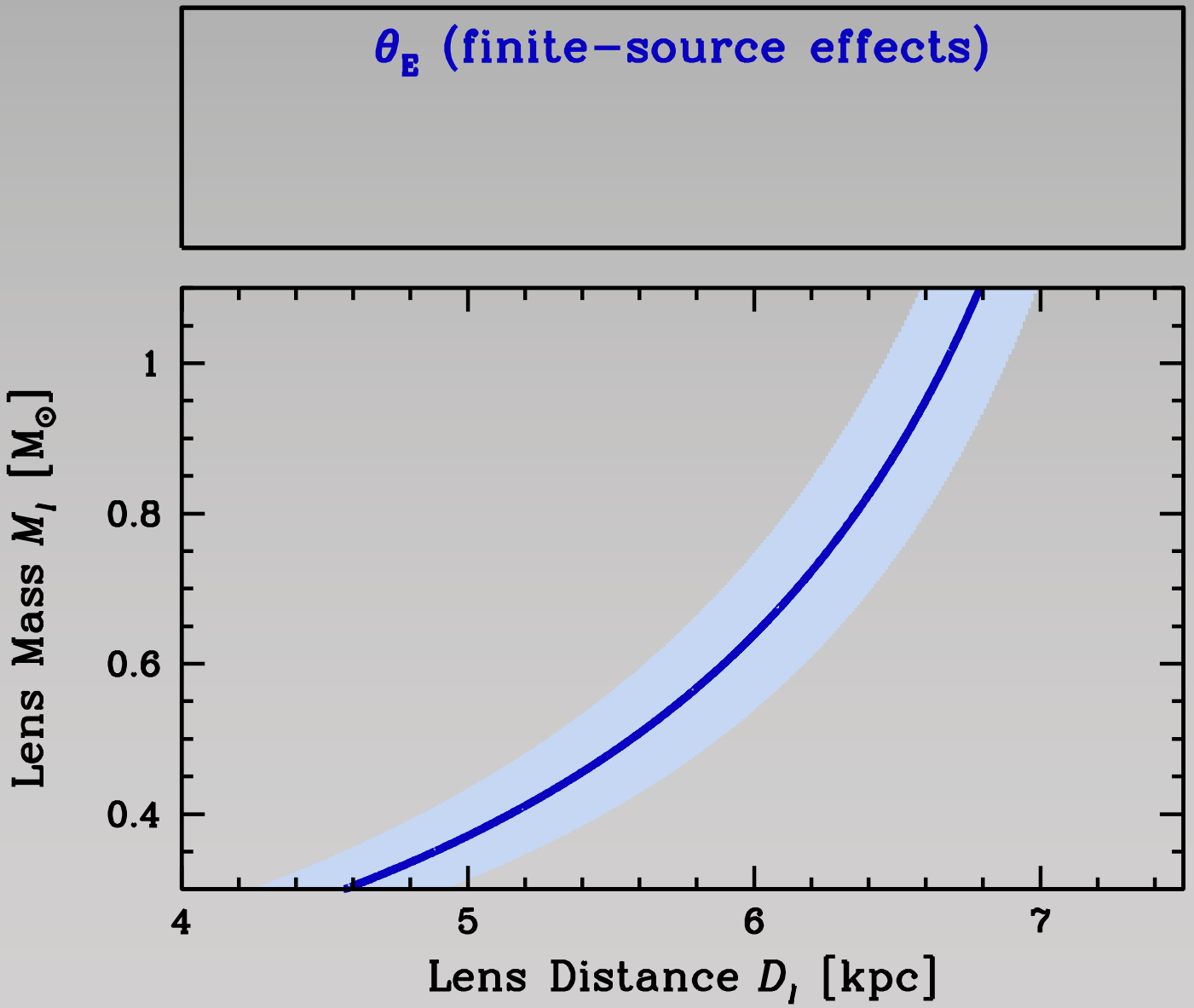

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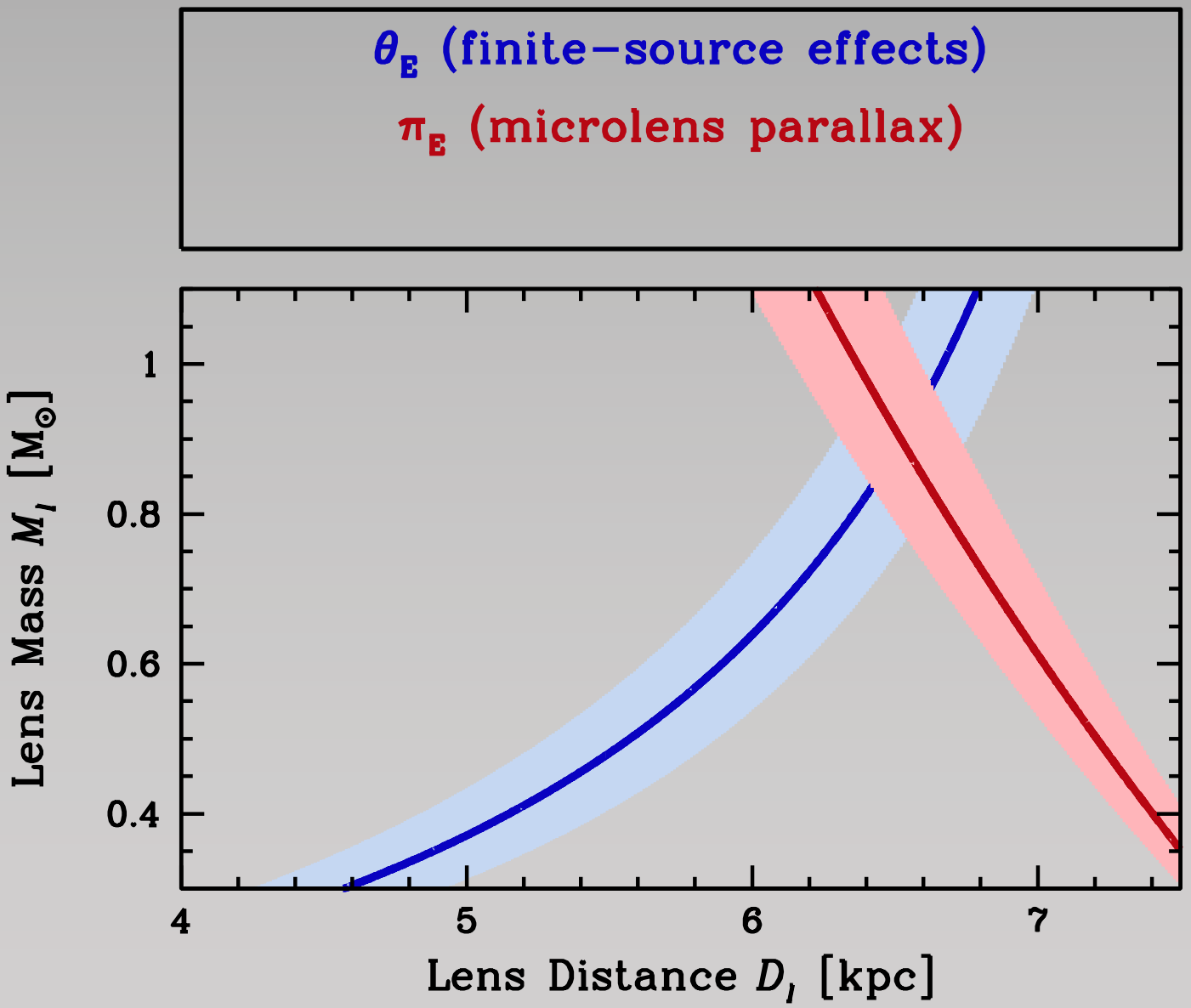

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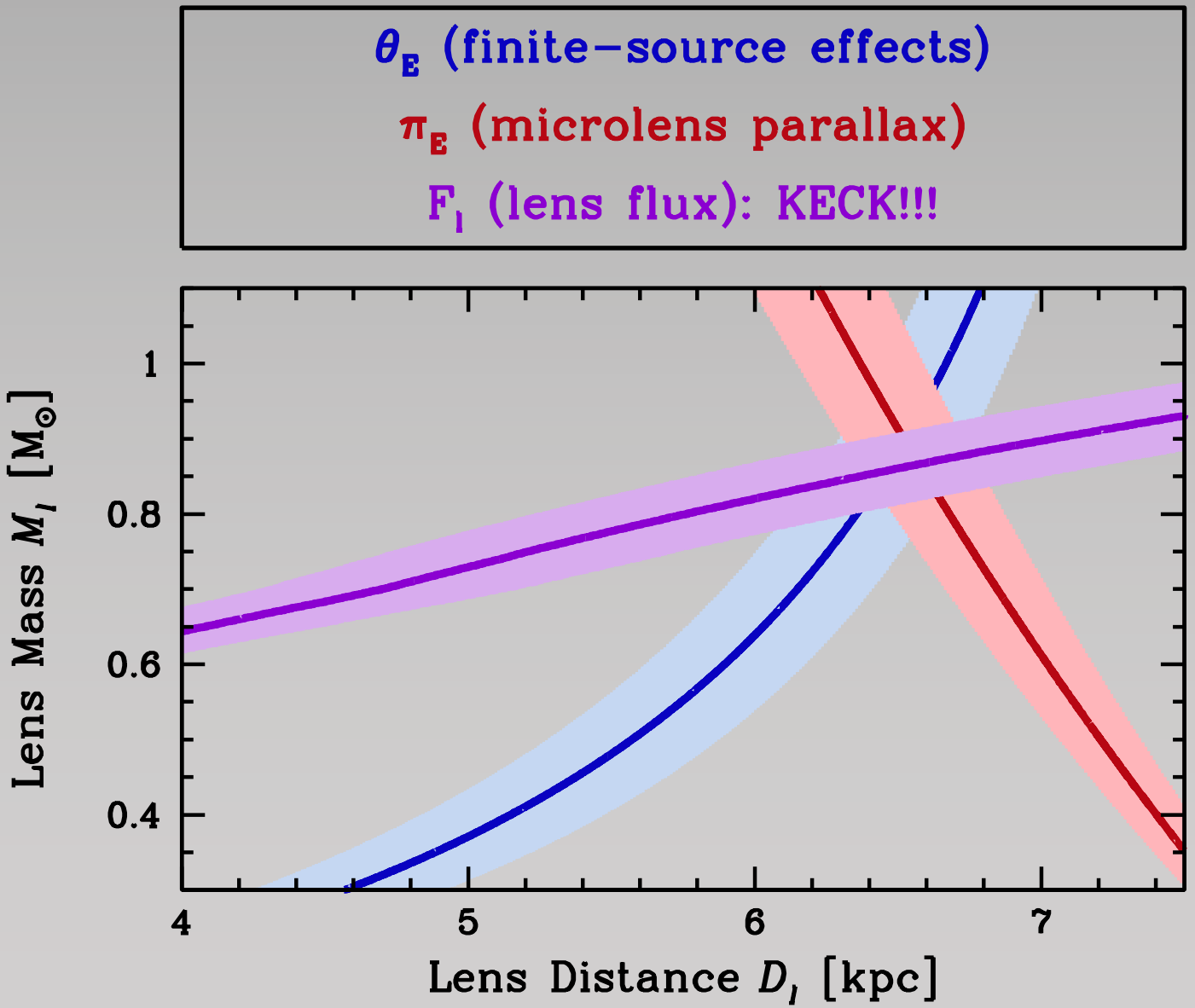
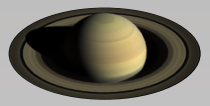


# Microlensing Follow-up with Keck: Immediate Science *and* *WFIRST* Prep!

## …but:



- Isochrones versus empirical mass-luminosity relations
- Stellar age is generally unknown
- Direct measure of NIR extinction toward lens
- Systematic uncertainty in absolute photometric calibration
- Blend flux contribution from ambient stars
- Blend flux contribution from companion(s) to lens or source
- How to reconcile with $\theta_E$ and $\pi_E$ methodologies?!?