

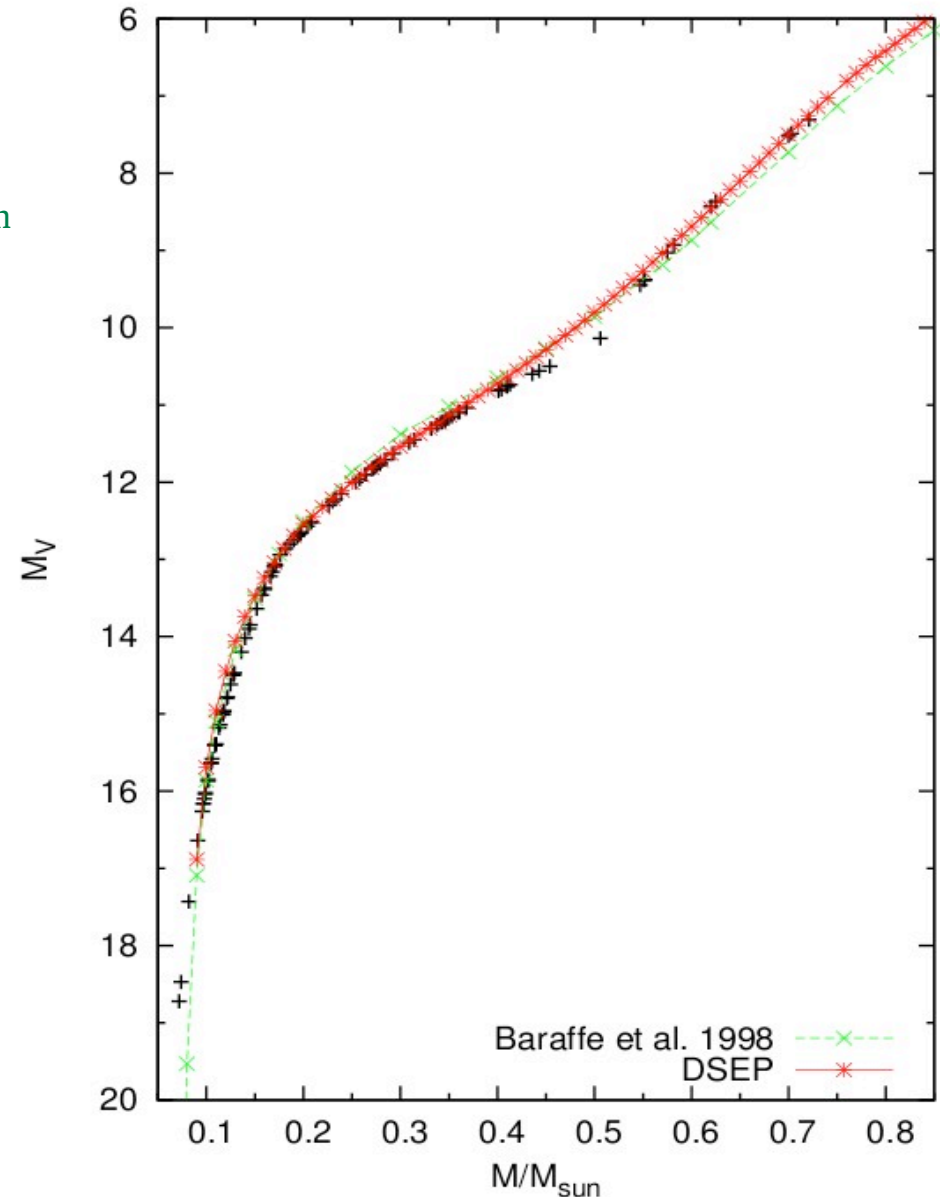


# Modeling Low Mass Stars

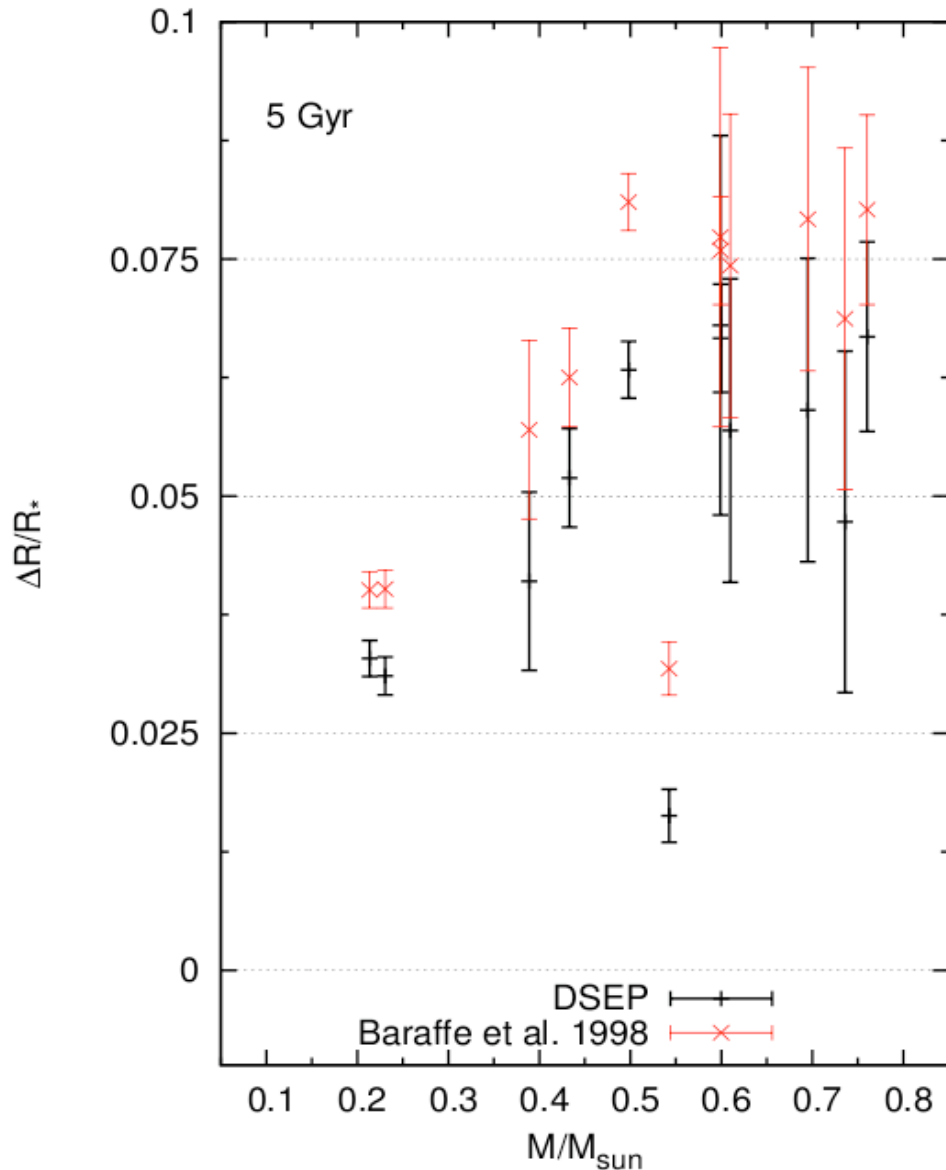


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- Need for accurate models
  - Primarily for  $M_* < 0.60M_{\text{sun}}$
  - Mass- $M_V$  relation
  - Mass-Radius relation
- Current NextGen models
  - Baraffe et al. 1998
    - Artificial  $\alpha_{\text{mix}} = 1.00$
  - Widely used in exoplanet community
  - Known discrepancies



# New Models



High precision data from Ribas et al. 2006

- Mass-Radius Relation
  - Critical for exoplanet characterization
  - Baraffe et al. 1998
    - 5 – 8% Discrepant
  - Dartmouth Code (DSEP)
    - 1 – 7% Discrepant
- Future of DSEP
  - Magnetic field effects
  - Improved convection treatment
  - Improved surface BCs