

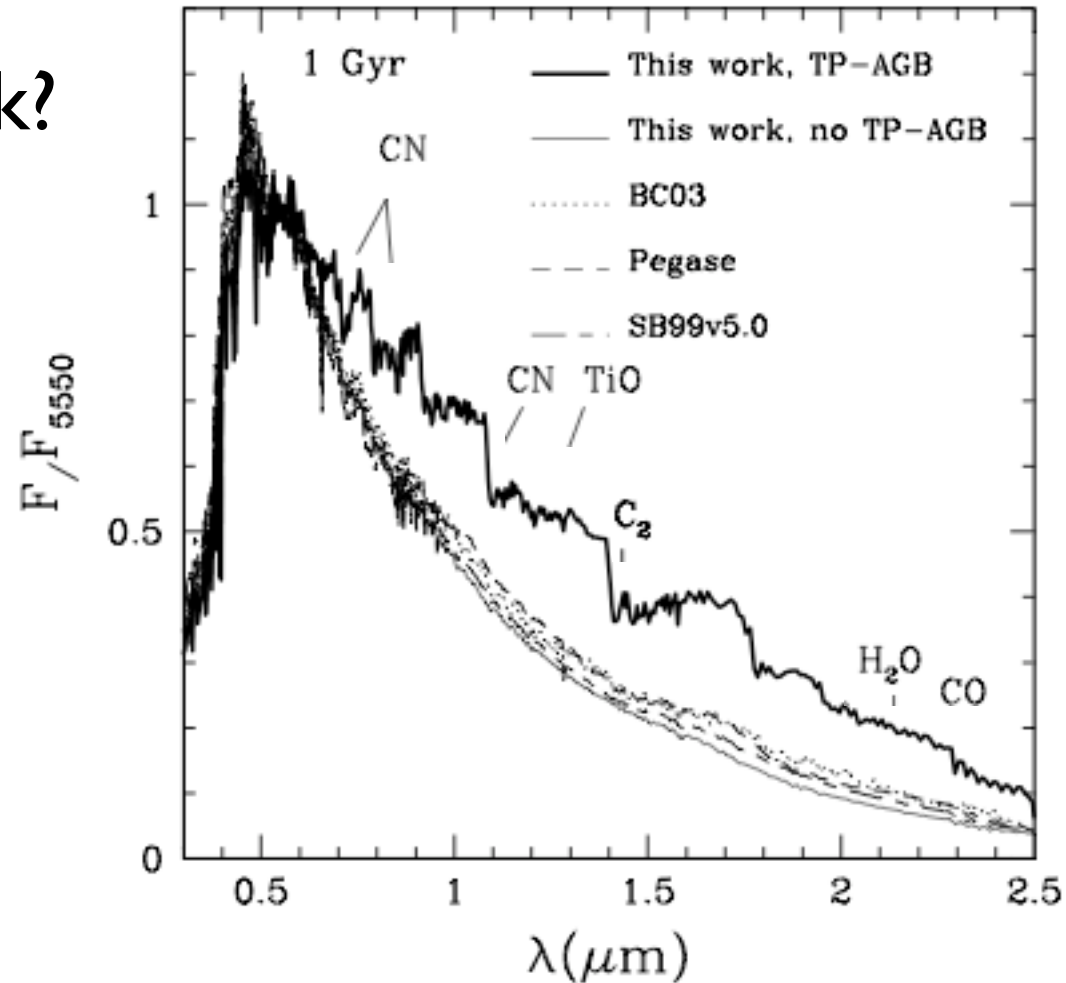
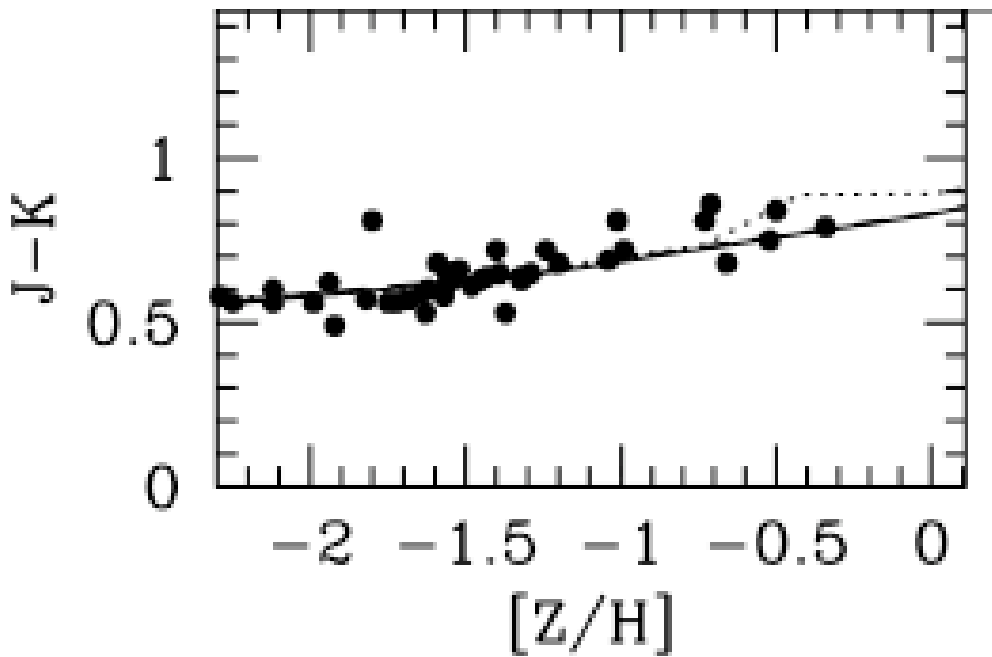
# Evolutionary Population Synthesis: models, analysis of the ingredients and applications to high-z galaxies

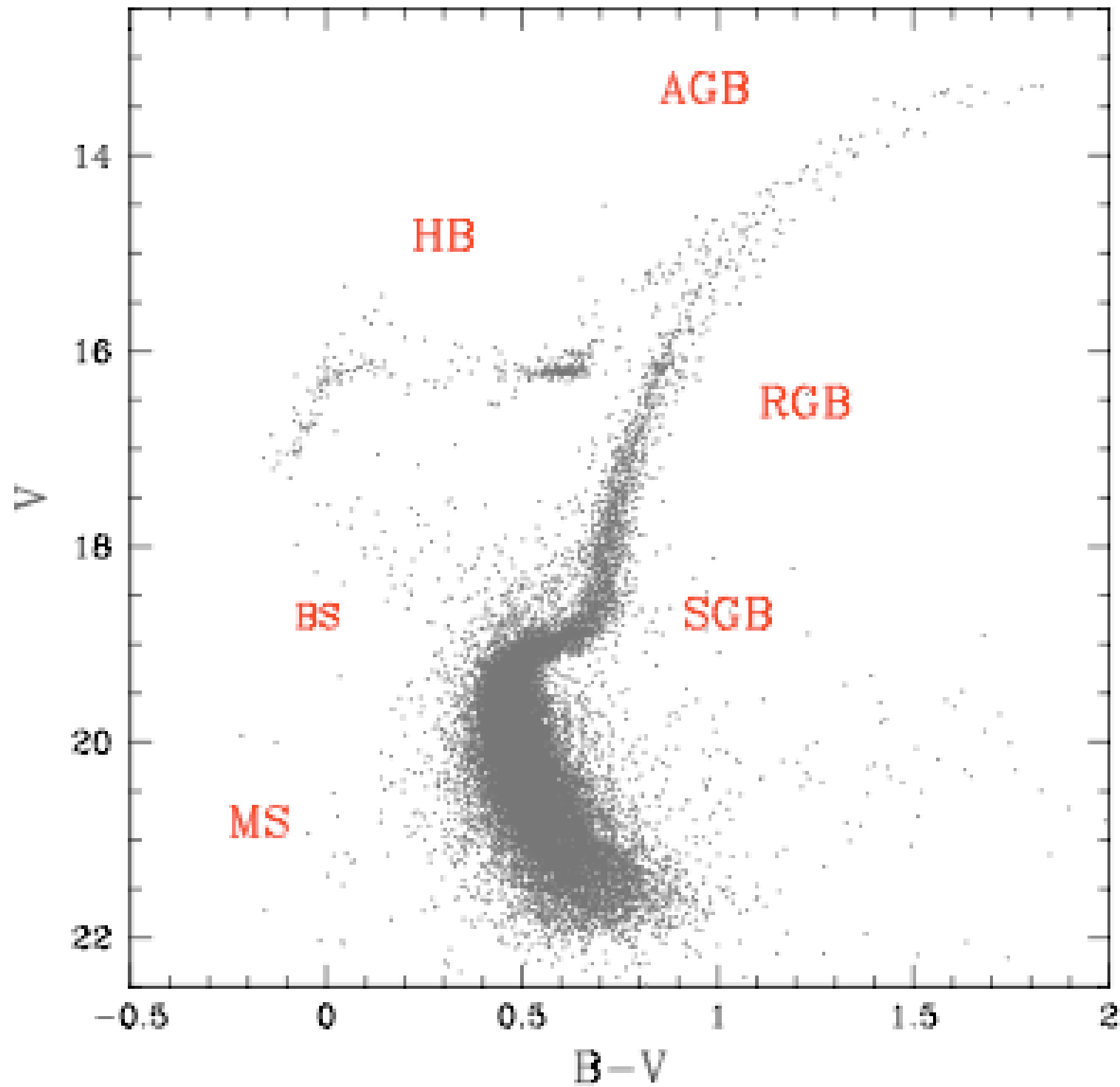
## Acronyms:

- SSP ---- Simple Stellar Population
- E-AGB -- Early Asymptotic Giant Branch
- TP-AGB -- Thermally Pulsing AGB
- PMS --- **Post** Main Sequence
- RGB- Red Giant Branch

# Evolutionary Population Synthesis: models, analysis of the ingredients and applications to high-z galaxies

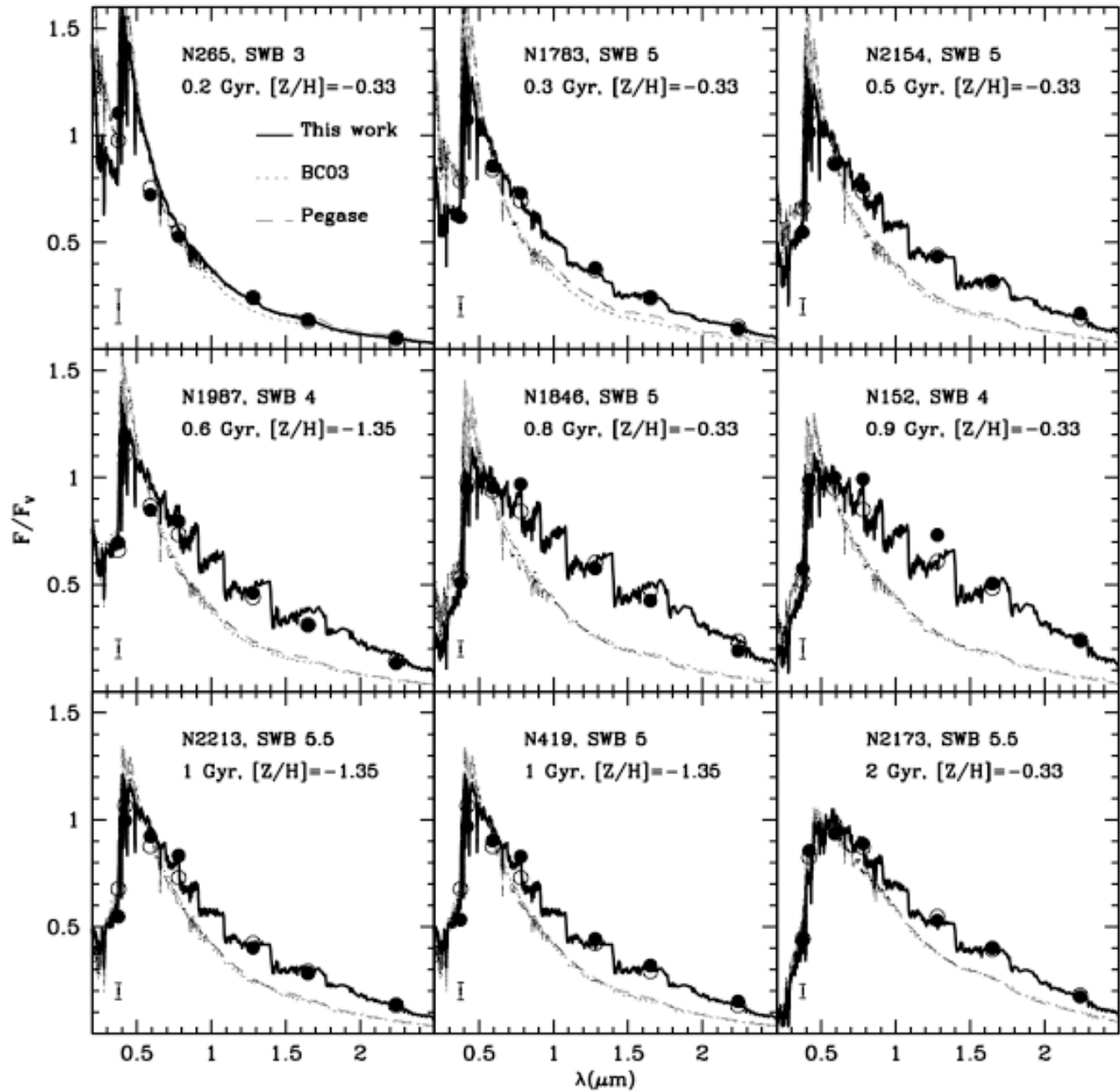
Why do we need more work?





To fit the data better.

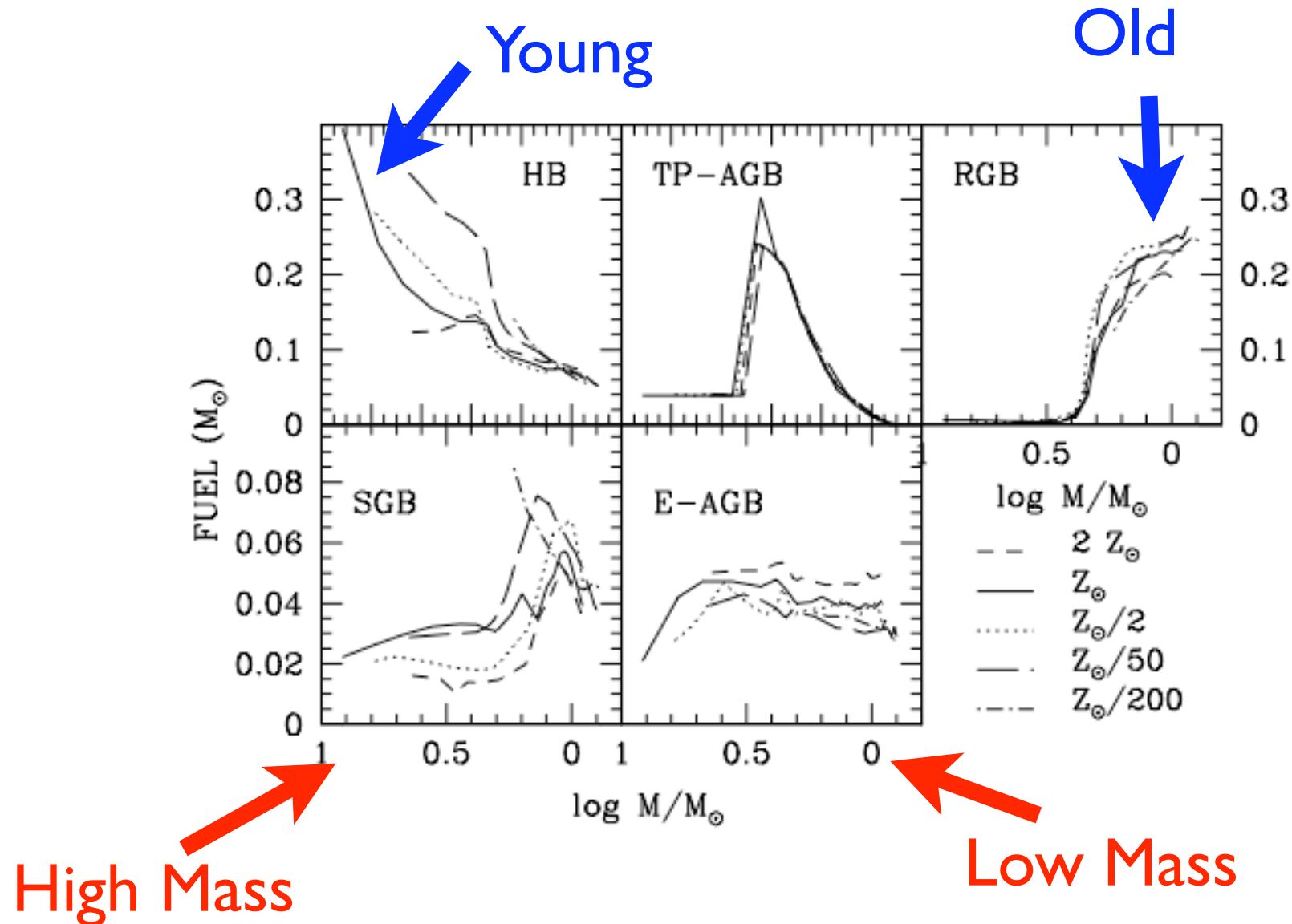
- L-T relationship
- TP-AGB
- C-star spectra

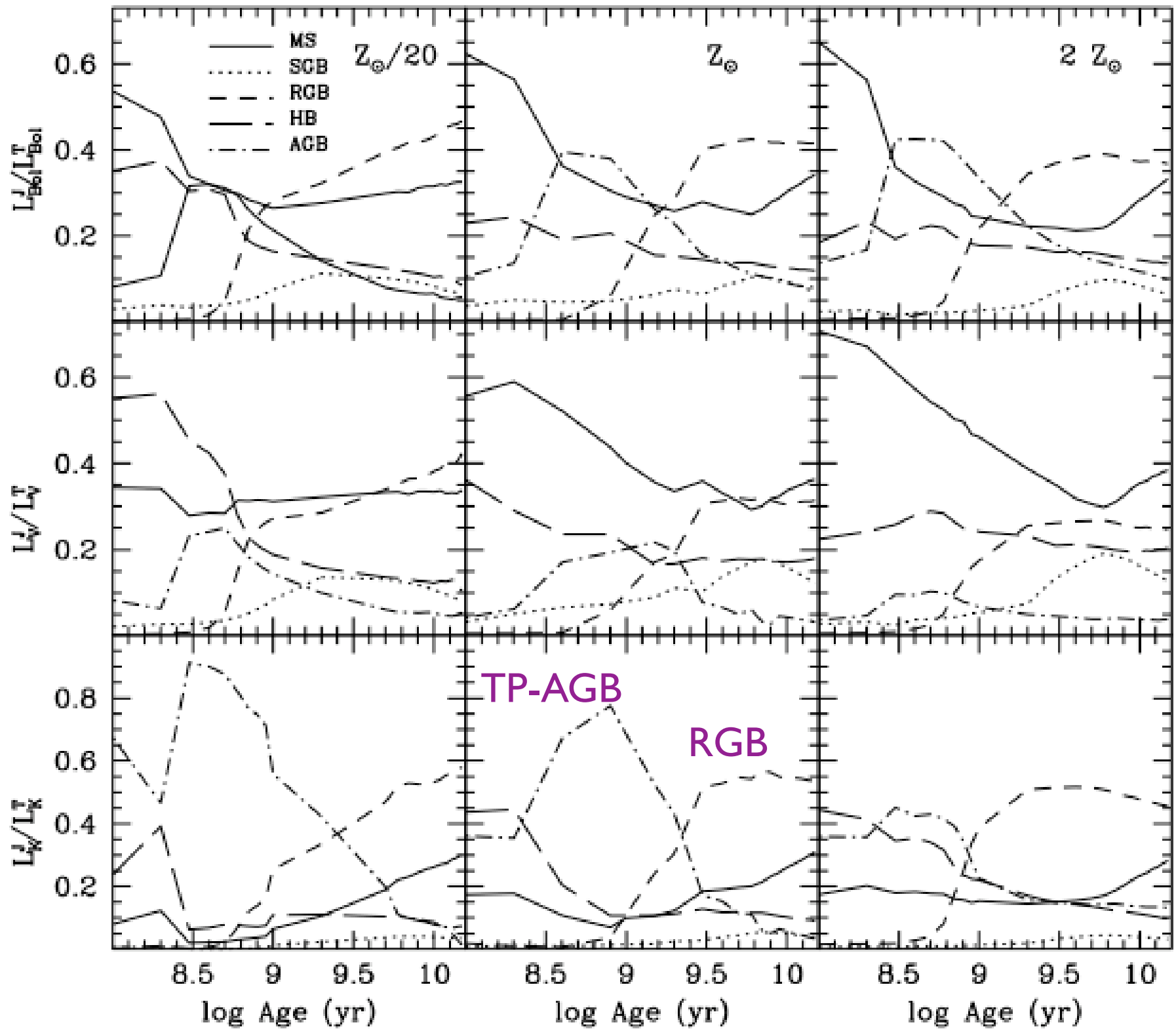


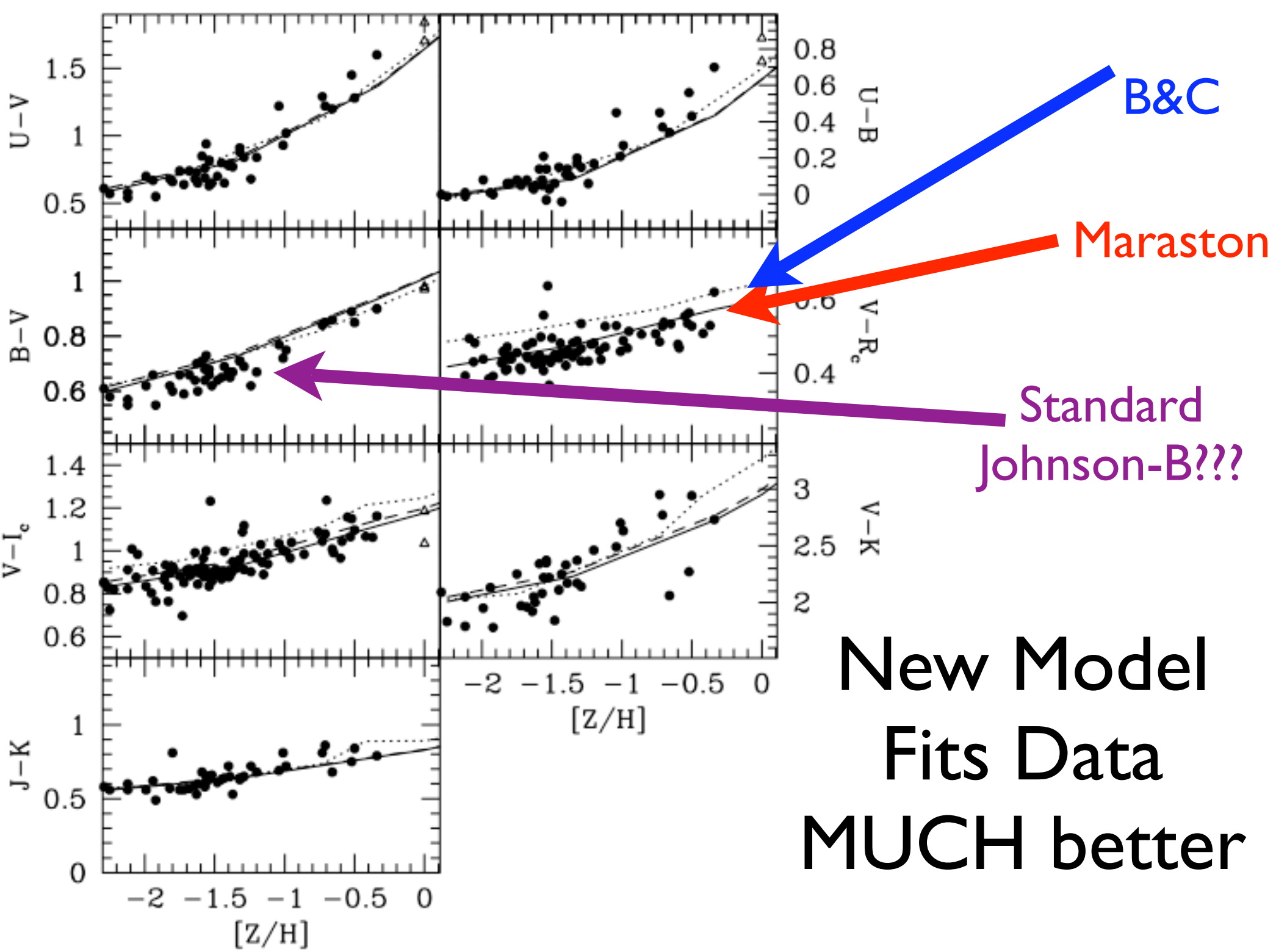
# How are they REALLY different?

- Isochrone synthesis
  - Integrate flux along mass bins on isochrone
  - not accurate for BHB and TP-AGB
- fuel consumption
  - Integrate fuel used in certain phase
  - fuel directly proportional to total luminosity
  - Rarely used

# Which Phase is dominant?







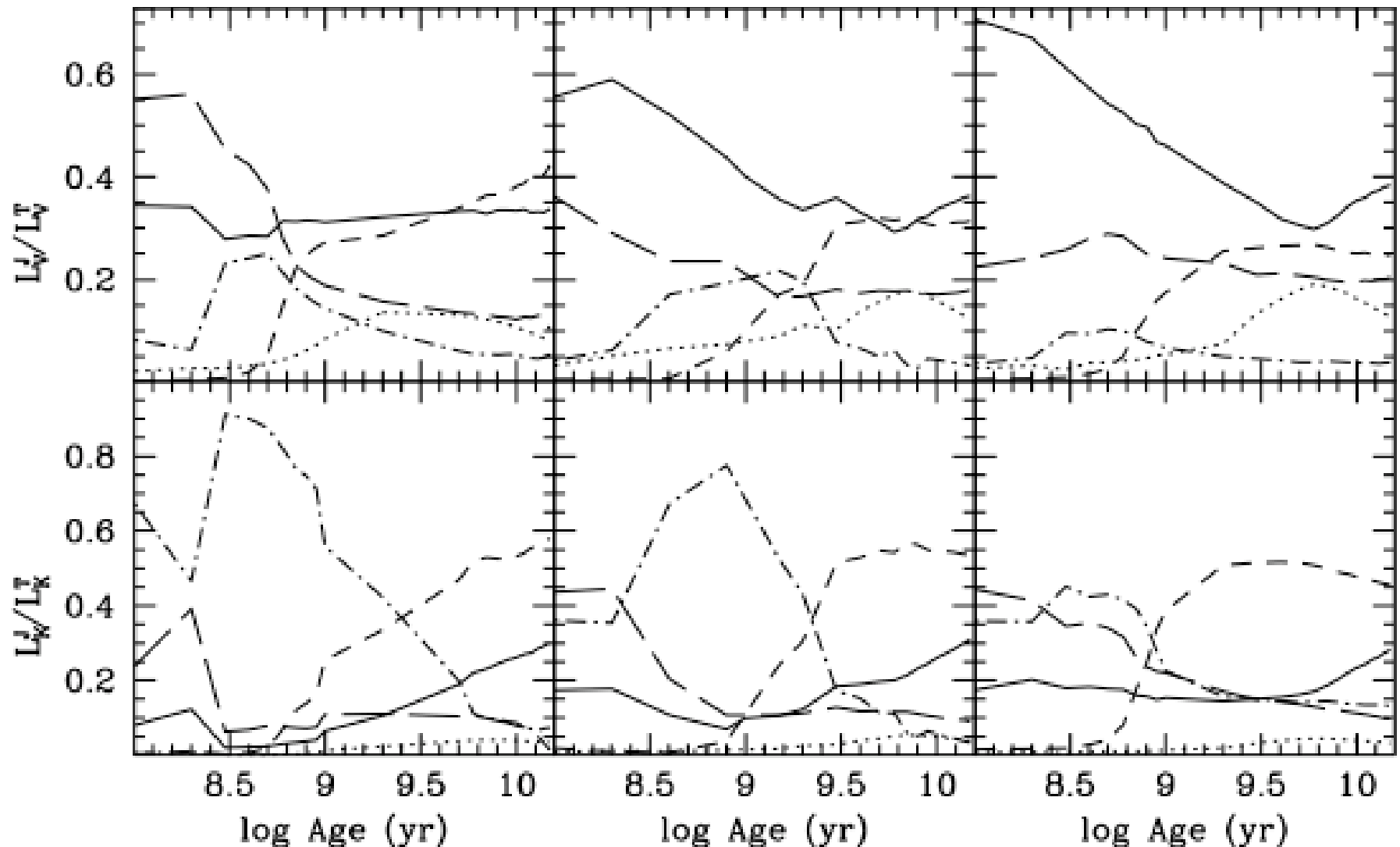
New Model  
Fits Data  
MUCH better

# Application to high-z

Rest frame V-K at  $z=3$  is measured as K-10 $\mu\text{m}$

**PREVIOUSLY:** Measured age at  $z\sim 2-3$  to be 2.5Gyr or more!

- Some Galaxies exceed the age of the universe!

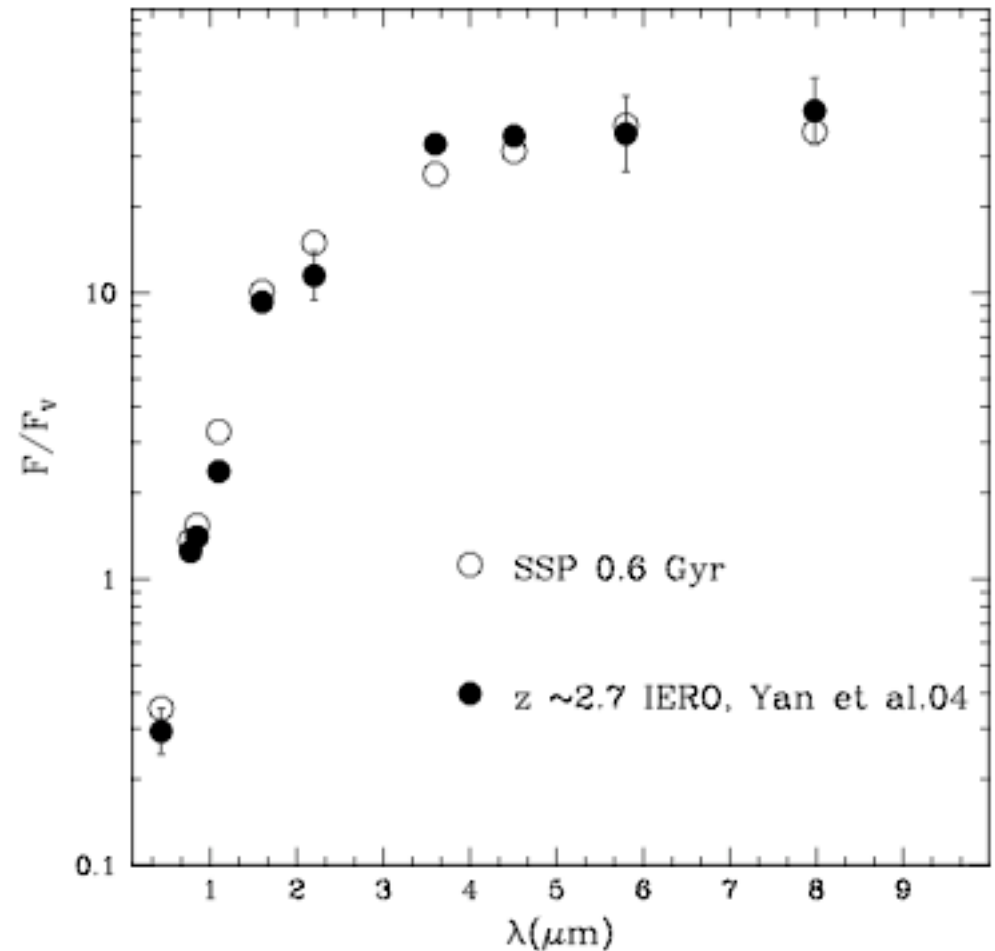
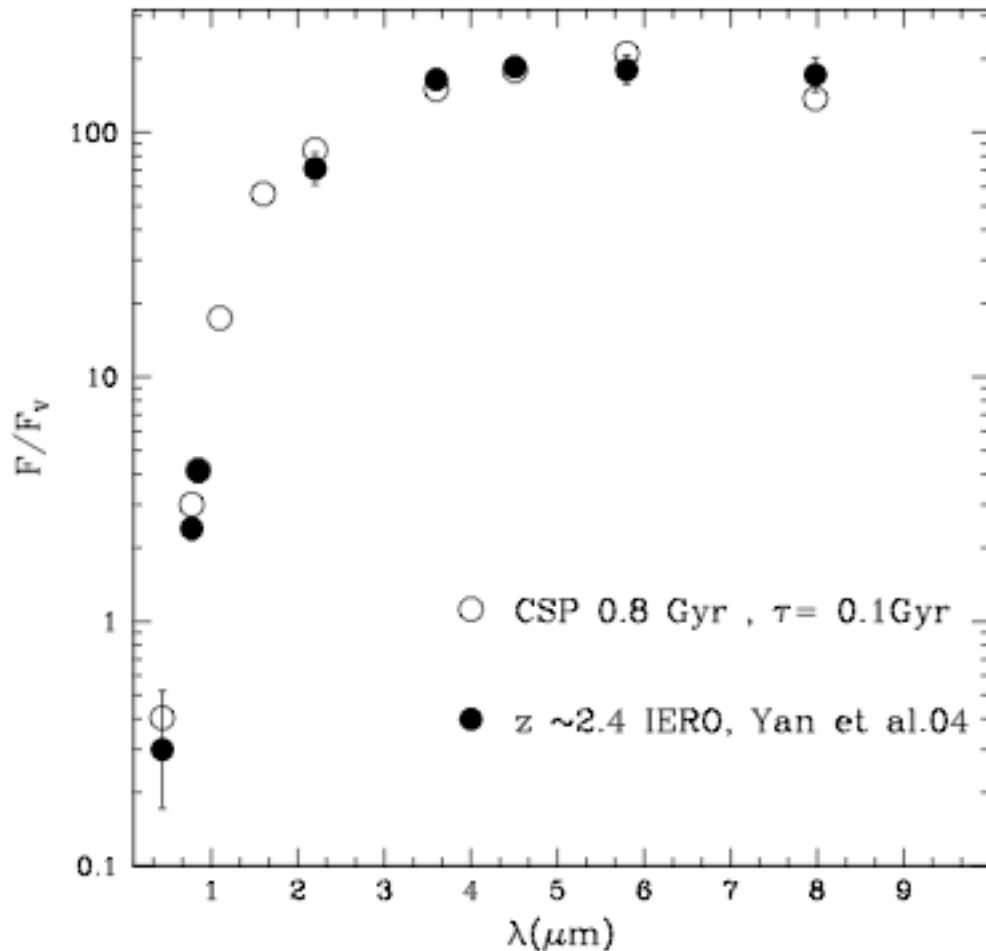


# Application to high-z

Rest frame V-K at  $z=3$  is measured as K-10 $\mu\text{m}$

**NOW:** Measured age at  $z\sim 2-3$  to be 1 Gyr or less, 'by eye'!

- NO Galaxies exceed the age of the universe!



# Outstanding Questions

- ALL Models are systematically too red in B-V
  - Are age fits too old?
    - when changed other fits worsen.
  - defect in colour-Temp transformation?
    - bad model atmosphere?
    - but empirical models are also too red.
  - filter mismatch?
    - Which B filter was used?
- Is this good enough?
  - Are we sure now we are getting the CORRECT age?

