

Uncertain stellar evolution: convection, rotation, magnetic field, and binarity

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Not only solving the hydrostatic structure of self-gravitating system, stellar evolution simulation involves several input physics; a nuclear reaction network, thermal neutrino radiation, opacity, convection, and so on. Moreover, continuous efforts have been devoted to deal with the effects of wind mass loss, stellar rotation, stellar magnetic field, and binarity. Considerations of these additional physics are required to understand the wide diversity observed in real stars. However, they simultaneously bring a certain degree of complexity and uncertainty to the modeling.

After a brief review of current status of stellar evolution modeling, especially paying attention to the observation, I will try to deduce some concrete conclusions.