Major challenges in stellar evolution:

- **convection** (discussion: dominant contribution to uncertainty and solvable)
- mass loss (hydro simulations are getting better, many new observations, need to be incorporated into next-gen models)
- mixing uncertainties more strongly affect ultra-low and zero Z predictions
- other mixing processes: rotation and magnetic fields, “extra-mixing”
- effects of progenitor evolution on SN explosions
- lowest-mass SN progenitors, super-AGB

Most stars are binaries!!!
3D stellar hydro

• address open questions in stellar convection
• moving into the mainstream
• “if we would spend today as much computational effort on stellar evolution as people did in the 70’ we could take 3D effects of convection into account ... in some way”
• discussion on how to interweave 1D and 3D, different approaches thinkable, to be explored

Validation
• opportunities in pre-solar grains
• ...
• Validation of models through systematic observations
• Nuclear physics uncertainties affect our understanding of stellar structure and evolution
• Nuclear database needs significant improvement - especially at low temperatures (extrapolations can still be perilous)
• Nuclear physics must be directly linked to observables
• Interface of astrophysics, astronomy and nuclear-physics experiment needs to be strengthened