

# S262 Concluding Remarks

# S262 proceedings

- Please consult page 17 of *Program Book* for details about acquiring the book
- Posters.....**2 pages** (*please take down your poster now!*)
- Contributed talks.....**4 pages**
- Invited talks.....**8 pages**
- Keynote review talks....**10 pages**

- Deadline: **September 30, 2009**

(macros will be made available on the S262 webpage next week)

Please make sure to fax the **copyright agreement** to the editors at the number provided with the macros

# Poll on main recent achievements

- Availability of updated physics (e.g. opacity for C-rich mixtures) for all the main evolutionary phases and in particular the AGB stage; major efforts to describe the physics of TPAGB winds
- TPAGB observations: complete sampling and detailed information in the Magellanic Clouds (2MASS, Spitzer, AKARI...)
- Development of (fully spectroscopic) alpha-enhanced models
- Detailed imaging and spectroscopic studies of spatially resolved stellar populations in the Milky Way and nearby galaxies; reconstruction of star formation histories
- Improved modeling of SN feedback and chemical evolution in simulations of galaxy formation

# Poll on main recent achievements

- Creation of databases for observations and theoretical models, which can be queried and cross-linked (allows panchromatic studies and the easy exchange of libraries and evolution models on the theoretical side)
- Linking of the huge amounts of new spectral data from galaxy surveys at all redshifts to simulations via stellar populations
- Construction of the mass assembly history of the Universe
- First extremely deep infrared spectra of distant galaxies giving access to detailed rest-frame optical fits of high-redshift galaxies

# Poll on main upcoming challenges

- Development of **well-calibrated** and **extensively tested** models in the rest-UV and rest-NIR
- This implies modeling the "late" phases (BHB, TP-AGB, ...) of stellar evolution with the same degree of accuracy that we achieve for main sequence stars (fully exploit all available information about AGB stars in nearby galaxies)
- Improve models for non-solar abundance ratios (improve the tracing of galaxy assembly from chemical patterns of galaxies)
- Systematic studies of the uncertainties in model predictions

# Poll on main upcoming challenges

- Extend detailed imaging and spectroscopic studies of spatially resolved stellar populations to outer galaxies (GAIA, JWST, ELT)
- Detect the first generations of massive stars at the highest redshifts and prepare tools and models for understanding them
- Understand the formation and survival of thin discs in cosmological simulations
- Exploit new constraints on galaxy gas content (from LMT, ALMA, EVLA, SKA...) in the context of stellar population studies

*See you in a decade!*

*Gustavo & Stephane (BC20)*