

[Room/Salle : Campaign B]

Chair: D. Hanes, Queen's U.

WE-P15-1

16h30

The Initial-Final Mass Relationship*, Jasonjot Kalirai¹, H. Richer¹, P. Bergeron², G. Fahlman³, B. Gibson⁴, B. Hansen⁵, T. von Hippel^{6,1} *University of British Columbia*,² *Université de Montréal*,³ *HIA/NRC*,⁴ *Swinburne*,⁵ *UCLA* and⁶ *University of Texas* — The initial-final mass relationship relates the mass of a white dwarf star to its main sequence progenitor mass. The relationship, despite being poorly constrained, is widely used as input in several important astrophysical areas. These include determining the upper mass limit to white dwarf production, constraining the rates of type II SNe, better understanding star formation rates, determining the chemical enrichment of the ISM, and constraining the birth rates of neutron stars. We will discuss first results from a new program at Gemini to investigate the white dwarf initial-final mass relationship. Preliminary analysis of multi-object spectroscopic observations of very faint candidate white dwarfs in the rich, well studied, open star cluster NGC 2099 will be presented.

* This work is being supported by NSERC.

WE-P15-2

16h45

Simulating Spitzer 3-24Micron Colour-Colour Diagrams Including Redshift Evolution, Anna Sajina¹, M.D. Lacy² and D. Scott¹, ¹*University of British Columbia* and ²*Spitzer Science Center* — We use a simple parametrization of the mid-IR spectra of a wide range of galaxy types in order to predict their distribution in IRAC/MIPS colour-colour diagrams. In particular, we discuss three basic types by the energetically dominant component in the 3-12micron regime: stellar-dominated, PAH-dominated, and continuum-dominated all spread over the range $z \sim 0-1.5$. This allows us to present colour cuts preferably selecting higher redshift sources of specific type, as well as to discuss possible tests for redshift evolution of the average SED. We compare our predictions with Spitzer First Look Survey data released to date.

WE-P15-3

17h00

Geodetic Precession And The System Geometry Of PSR B1534+12, Ingrid Helen Stairs¹, S.E. Thorsett² and Z. Arzoumanian^{3,1} *University of British Columbia*,² *University of California* and³ *Goddard Space Flight Center* — We have conducted high-precision Arecibo observations of the relativistic double-neutron-star binary pulsar B1534+12 since 1998, with data being acquired biweekly and in roughly annual 12-day campaigns. These observations show clear evidence of pulse profile and polarization changes due to geodetic precession of the pulsar's spin axis, which is misaligned with the total angular momentum of the system. We have also found evidence for orbital modulation of the pulse profile due to the special-relativistic effect of aberration. The aberration data and polarization changes can be used to calibrate the scale of the long-term precession effects, resulting in the first quantitative test of the geodetic precession rate in a strong-gravity system. In addition, these observations completely constrain the geometry of the binary system, which otherwise suffers from multiple ambiguities. We discuss implications for asymmetries in supernova explosions and prospects for application to other double-neutron-star systems.

17h15

Session Ends / Fin de la session