AVO demo need of science cases

- VO characteristic
- Summary of what the science problem is and likely outcome
- Rough outline of the workflow step involved in addressing the case
- Indication of key data resources required
- Indication of key algorithms required

Projects

- AGB to PN transition (Garcia-Lario et al.)
  - Multi wavelength and richness of features
  - Discovery of new candidates
  - Multi input data source CC diagrams for candidates, check against SIMBAD if new
  - Data: in VizieR
  - Algorithms: SED analysis tools (BB fitting, change of units, beam correction for extended sources, database of filters associated with standard UCDs, synthetic photometry, model fitting)
  - Problems with AVO prototype: only default columns available, selection constraints (e.g. for 2MASS)

Projects

- AGB to PN transition (cont.)
  - Cross-matching with SIMBAD interesting to search for object type classification and/or to recognize new sources not yet identified in the literature (to get object type, bibrefs etc.)

Projects

- Search for IR excess in bright stars (Sierra, Garcia-Lario et al.)
  - Exploratory: find IR excess sources (young and old)
  - Cross correlate list of stars with prediction for IR flux with stars with measured IR fluxes; find excess sources after eliminating variables
  - Data: MSX (available), 2MASS (future, see problems)
  - Algorithms: select, cross-correlate and plot **large** data sets
  - Problems: AVO prototype (VOplot) not stable with >100,000 sources, cross-matching >10,000 sources does not work

Projects

- Companions to PN central stars (Kerber et al.)
  - Case with theory included
  - Find the expected but unknown PN companions
  - Take PN catalogue, cross-correlate with GSC 2MASS and DENIS, compare SED to high resolution model and deviations are companion hosting candidates
  - Data: PN list, GSC, 2MASS, Denis (VizieR), filter curves
  - Algorithms: automatic cross-matcher, classifier for SED vs. model comparison (in progress with GAVO)

Projects

- Evolution of circumstellar disks in pre-main sequence stars (Solano on behalf of SpanishVO)
  - Separate VO facility, not part of AVO demo tool
  - Characterisation of proto-planetary disks
  - Collection of observational data (SEDs); stellar physical parametre definition; model fitting
  - Data resources: user data, INES, ISO, IRAS, 2MASS, Stromgren and Johnson photometry (all existing)
  - Key algorithms: calibration of stellar parametres and model fitting with data mining (all existing)

Projects

- Dust emission in the SMC from the diffuse medium to molecular clouds (Bot et al.)
  - Sources are extended
  - Gas to dust ratio as a function of metallicity in ISM and compare with stellar metallicity distribution
  - Data: Radio data missing, CO data missing, (F)IR data OK
  - Algorithms: simple image manipulation
  - Convolution tool (to cope with different resolutions)
  - Simple arithmetics: + - X /
  - Pixel to pixel correlations

Science Reference Mission

- The evolution of proto-planetary disks from initial conditions to planets
- The contribution of low and intermediate mass stars to the chemical evolution of galaxies
- The life cycle of dust
- The characteristics of the field stars
- Which star goes supernova next?
- IMF within 1kpc: from planetary to stellar masses