Notes from AMS, please add/subtract!!!!!

Evolution of proto-planetary discs from initial conditions to planets

* Summary of problem and outcome
  What determines whether the accretion disc around a YSO forms planets?
  - stellar mass, metallicity, binarity, disc destruction etc.
  Leads to understanding the occurence and survival of planets (and potentially their nature, e.g. possibility of rocky planets with atmospheres and oceans)

* Workflow
  Find and characterise discs and look for evidence for planetary condensations
  - Enrique Solano's case - model fitting SEDs for unresolved protoplanetary discs using mm-NIR data, also involves characterising central star
  - Using dust:gas ratio (depletion due to ablation or condensation?)
  - Imaging - HST, continuum radio interferometry (mm-cm) (non-therml disc ablation v. thermal dust etc.)
  - Kinematics and conditions using masers and other molecular lines
  - Chemical composition and diffentiation

  Relate properties to the environment
  - Local - jets, dynamically significant companions (model comparisons?), nearby OB stars
  - Metallicity of region (direct estimate, location in galaxy)
  - Age and IMF of star-forming region as a whole

* Data (within next few years)
  See Enrique Solano's case - IUE, ISO, 2MASS. Spitzer

  sub-mm SCUBA (may be 'openning' archive', 'pre-ALMA' e.g. APEX)
  mm - VLA, CARMA (soon)
  cm - VLA, e-MERLIN in 2-3 years
  May need on-the-fly data centre imaging for interfero data
  masers - VLA, (e-)MERLIN, EVN, VLBA, ATCA etc.
  CO and thermal lines. CARMA, JCMT, pre-ALMA, ??Nobeyama?
  etc.

Contributions of low and intermediate mass stars...

NB use of masers to investigate mass loss e.g. possible direct link between wind clump size and convection cells/stellar chemical inhomogeneities in AGB stars