Summary PDR workshop

- **Great to have everyone together and discuss/compare codes so openly (*this was a real 'work'shop!)***
- **Better awareness of parameters that affect outcome of codes => '*lots of factors of two floating around':* make inventory of these factors**
- **Stay honest: know limits of astrophysical applications**

Summary: chemistry

- **Identification of reactions crucial in C^+ => C => CO transition**
  - **H_3^+ dissociative recombination**
  - **$O + H^+$, $C + S^+$**
  - **PAH chemistry (I.p. C^+ + PAH^- and PAH^- abundance)**
  - **S, He abundance**
  - **Cosmic ray ionization formulation**
  - **Bistability**
  - **Time dependence**
- **Minor (?) effects:**
  - **CO shielding functions vs full treatment**
  - **EUV photons from leaky H II regions**
  - **Shielding by metal lines**

Summary (cont'd)

- Use benchmark testing to get out 'silly' mistakes
- Important to keep checking detailed output (e.g. gridding issues in certain regions of parameter space)
- Keep codes flexible, especially ability to use different chemical networks

Next steps

- **Send all presentations to Markus to put on Web page**
- **Send 1-2 page summaries of special sessions to PDR list by April 21**
- **Keep up momentum to finish benchmarking in next month. Goal is not a single 'best' code/output, but an understanding where differences come from**

Next steps (cont'd)

- **All codes to send all F1-F8 updated model results with SAME collision rate coefficients to Markus by April 22 with brief description of changes (e.g., output error, new insight into importance of certain parameter, missing collision partner added, ….). Use T_{dust}=20 K F1-F4, calculated T_{dust} F5-F8; include PAH heating**

=> Telecon May 4, 5 pm CET, 11 am EDT, 8 am PDT

Next steps (cont'd)

- Update/collect atomic + molecular data on Web
  - Set of recommended values?
- Paper on benchmarking + well-maintained Web page? Roellig et al. summer/fall 2004
  - Layman intro
  - Description of codes (link to Web page)
  - Output model results: F1-F8 or just F1+F5?
  - Model results using same atomic data?
  - Description of sensitivities ('factors of 2')
    - Geometry
    - Chemistry
    - Heating processes/grain properties
    - Radiative transfer