Interstellar emission model and tool

Seth Digel, Jay Norris, Eduardo do Couto e Silva, Y. Lin, Massimo Fiorucci, Tune Kamae, Stan Hunter, Olaf Reimer, Mutsumi Sugizaki, Isabelle Grenier

Interstellar emission model

- **ISRF cube:**
  - work in progress in Garching & Bochum/Santa Cruz
- **Gas cube:**
  - HI inversion at GSFC
  - HII surveys available
  - H2 inversion… further down
  - M(CO-g) vs M(IR-g) problems ahead
- **Radiation processes:**
  - p-p, p-n, p-He, p-C interactions, resonances: DPMJET v3 (Bochum), GEANT4
  - Review of cross sections vs. data (SLAC, Italy)
  - Brem with He etc…
- **CR propagation:**
  - GALPROP at Garching, prop. model at Bochum
  - Nearby sources and propagation: Bochum & Saclay
  - CR/matter coupling at GSFC

IS emission model

- **Tests**
  - **On standard EGRET data**
  - **On ‘cleaned up’ EGRET data**

- **ISM Workshop**
  - **Next year in Paris**

- **People support (~ 12)**
  - **Garching, Bochum, Saclay, HEPL, Goddard, Italy?, SLAC**

Interstellar emission tool A8

- **Input =**
  - **IS emission cube + E band + region**
  - **+ Gmult + Gbias (within limits for choice of E and region)**
- **Output =**
  - **space-energy array with differential intensities**
- **Tessellation**
  - **IS emission cube probably in inertial Gal. Ref. Frame and (l,b)**
  - **gridding scheme to be tested with simulated data**
  - **Gridding decision: when? how?**
  - **(x,y,z), (l,b), (a,d) to final grid module to be called by many other modules**