Feedback from Extragalactic breakout session

Chris Wilson and Yu Gao, session leads
(16 participants present)

Note: names attached to ideas indicate the person who started the discussion on a particular topic
Extension/follow-up of existing surveys: JINGLE

- Increase the number of galaxies with both CO (gas) and dust (850) observations (Chris Wilson for JINGLE team)
- Expand the parameter space
  - Galaxies above star forming main sequence (Mark Sargent, raised previously via email)
  - Green valley (Hsi-An Pan), red misfit (Chris Wilson), post-starburst galaxies (Hao Chen)
  - Galaxy pairs (Hsi-An Pan)
- Target galaxies that MaNGA has already observed (Ting Xiao)
  - 700 with HI observations from GBT
  - CO would give total cold gas
Extension/follow-up of existing surveys: MALATANG

- Observe HCN 3-2 with RxA at HCN 4-3 detections (Chris Wilson)
- HCN and/or HCO+ 4-3 observations of M31 (Qinghua Tan)
  - Would probe L(IR) range between Galactic clouds and MALATANG scales
- With a new HARP with more pixels, could do larger and more sensitive maps of MALATANG and other galaxy targets (Yu Gao)
Some ideas from previous large proposal discussions

- Edge-on galaxies co-ordinated with X-ray observations from CHANDRA: galaxy halos

- Dwarf galaxies
  - For example, dwarf galaxy pairs from the TINY TITANS survey (Yinghe Zhao)
  - CO or SCUBA-2 observations would probe cold ISM (targets already have HI from VLA)
Other ideas: Active Galaxies

- Narrow-line Seyfert 1 galaxies (Feng Gao)
  - Different accretion mode proposed
  - Do they have outflows?
  - Could survey in CO J=2-1

- LIRGs/ULIRGs (Chris Wilson, Qinghua Tan)
  - CO 3-2 and/or SCUBA-2 of GOALS sample (~200 galaxies)
  - Some previously observed but not all

- AGN-active Early-Type Galaxies (Feng Gao)
  - Not common in ATLAS-3D sample
Very nearby galaxies: various ideas

- Deep SCUBA-2 map of M31 (also M33)? (Chris Wilson)
  - Combine with existing Herschel data for better dust mass, temperature, etc

- SCUBA-2 survey of nearby equatorial galaxies (Chris Wilson)
  - Complementarity/synergy with ALMA (can’t get large-scale continuum emission yet)

- CO 3-2 maps to combine with Nobeyama large program on CO 1-0 of nearby galaxies (Hsi-An Pan)
  - Could also do dense gas tracers

- SCUBA-2 map of Herschel Reference Sample galaxies (Chris Wilson)
“Blue Sky” ideas

- Paul says “think aggressively”
- SCUBA-3: 850 micron map of the entire H-ATLAS survey area (many 10’s of square degrees) (Chris Wilson)
- Large maps of CO, HCN, HCO+ of nearby galaxies with HARP++ (Yu Gao)
- Blind CO J=2-1 survey of 10,000 galaxies (Chris Wilson)
Present at Nanjing session

- Chris Wilson, McMaster; Hsi-An Pan, ASIAA; Mark Rawlings, EAO;
- Yu Gao, Qinghua Tan, Chentao Yang, Xue-Jian Jiang, PMO
- Zongnan Li, Hao Chen, Nanjing University
- Qian Jiao, Tzanwen Cao, Li Xiao, NAOC
- Yinghe Zhao, YNAO
- Yang Gao, Feng Gao, Ting Xiao, SHAO