

## Controversies and Provocative Statements

- The Arecibo ALFALFA survey won't find a different source population from HIPASS because large telescopes are not suited to blind HI surveys. Disney.

- Yes they will. Giovanelli, Haynes, Kent.
- Blind surveys find that all HI galaxies have the same HI Column density. And it's not an instrumental or selection effect. Disney.
- Yes it is. Its because of your instrumentation. Giovanelli from the floor.
- Many claimed HI optical identifications could be wrong due to strong clustering.

Disney

- HI may be missing because of spin temperature freezeout. Disney
- There's no freezeout. Taylor and Webster have shown that all HI clouds of galaxy mass should form stars. Taylor - floor.
- My simulations show there is plenty of room for Dark Galaxies to form. Davies.
- VIRGOHI21 is a good Dark Galaxy candidate. Davies.
- No it isn't. It's tidal debris. Haynes, Giovanelli, Duc, Tully.
- Whatever it is it isn't tidal debris. Disney.
- Davies' simulations of VIRGOHI21 do not match our deep Arecibo data now in press. Giovanelli.

- My simulations of tidal encounters can explain VIRGOHI21 without a Dark Galaxy.

Duc

- No they don't fit in detail. They only fit the Arecibo data which doesn't have enough resolution. Minchin (showed fit).

- Resolution doesn't matter. Haynes from floor.
- Chandra picks up Oxygen lines of hot X-ray gas consistent with the predicted Warm Hot Intergalactic Medium. Mathur
- But they're not detected by XMM. Audience.
- It's a problem with the XMM gratings. Mathur
- All objects more than about 120 pc in size appear to have Dark Matter halos of more than  $4 \times 10^7 M_{\odot}$ . Wyse.

- Spirals must be shaped by several physical processes. Salucci.
- ALFALFA will find hundreds of HI clouds with masses less than  $10^7 M_{\odot}$  and this will yield an accurate HI mass function. Haynes.

- No it won't. Anyway you would need tens of thousands, as with the optical galaxy LF. Disney

- What is a Dark Galaxy? I define it as a stable disc. There aren't any in HIPASS.

Taylor.

- The baryonic Tully Fisher relation fits down to 10 km/sec. with a slope of 0.25 and does not fit the CDM simulations of Mo *et al.* which predict 0.33. McGaugh.

- All the baryons in galaxies are accounted for. McGaugh
- The Local Void is really empty. Tully.
- Simulations are not data. Impey
- There is no compelling evidence for missing baryons if you take diffuse light into account, Gonzalez.

- Lensing suggests for E/SO galaxies that there must be a conspiracy between halos and light. Koopmans.
- High resolution simulations of galaxy formation in groups strongly suggests that many of the minihalos predicted by CDM ought to be visible. Nelson
- “Catching black cats in a dark room is a very enthusiastic occupation”. Karachentsev
- The Toomre Criterion is not valid in galaxies. Schaye
- Because of the UV background halos below  $7 \times 10^9 M_{\odot}$  will be deficient in baryons. Hoefl
- dSphs must be continuously stripped, Grebel.
- There is no evidence of quenching in the Local Group Dwarfs. Grebel.
- The published dSph. masses could well be heavily contaminated by stripped and foreground stars and the true M/L ratios could be low. Klimentowski.
- With the discovery of ever more dim and dwarf galaxies we are only a factor 4 short of the CDM simulations. Geha.
- The Fornax cluster has a flat faint end LF, contrary to earlier work. Mieske.

### IAU Colloquium 171 'The Low Surface Brightness Universe', Cardiff, 1998 Controversies and Provocative Statements

- It's quite safe to walk on the beach. Disney
- LSBGs give rise to none/all of QSO absorption lines. Lanzetta/Linder
- Many of you are doing your visibility corrections wrong. Disney
- Why did we not find red LSBGs before. O'Neil
- Is  $(M/L)_{LSB} = (M/L)_{HSB}$  ?
- Surface brightness distribution is bi-modal. Tully
- HSB is a temporary phenomenon. Bothun
- Do LSBGs and HSBGs live in the same halo's? de Blok
- Will the inter-galactic radiation field kill low  $N_{HI}$ ? Briggs
- Does Dark Matter exist? McGaugh
- Massive LSBGs [ $M_B < -20$ ] are exotic. Tully
- Multi-beams will not find invisible galaxies. Tully
- (g)Es are caused by cannibalism. Richter
- Do all disks follow the same T-F relation?
- We would not see Malin 1 at the distance of M31.
- Morphological separation of Sd/Sn/Ic is meaningless. McGaugh
- Why did Bothun *et al.* find Malin 1?
- How can there be large HI discs mostly devoid of stars, but no such discs with no stars?
- $\mu(R)$  is meaningless for dwarfs. Brosch
- Are blue LSBGs young?
- Supernovae WILL NOT clean gas out of dwarfs.
- How do stars form if Jeans length greater than scale length? Bothun
- $\alpha = -1.5$  is simply a consequence of selection effects. Disney
- Most of the galaxies in our neighbourhood are undiscovered. Disney
- All the members of the Local Group have been discovered. Irwin, Kraan-Korteweg

- LSBGs are low angular momentum systems.
- There are very few completely dark HI clouds. Zwaan, Tully
- Steep  $\alpha$ 's in clusters are due to background contamination. Huchra
- HDF shows no evidence of a large population of LSBGs. Ferguson
- $z = 0.1$  is the best place to look for LSBGs. Dalcanton
- dEs and dIs are more extended in clusters than 'ordinary' galaxies. Davies, Phillipps
- Red LSBGs are younger than blue LSBGs. Bell
- Maximum disc models do not work for LSBGs. de Blok
- How do stars form at all well below Kennicutt column density threshold? van Zee,

Bothun

- Bars in LSBGs are common; how did they form? Knezek
- Shredded LSBGs are not progenitors of BCD. Salzer
- Super thin galaxies are LSBGs seen edge-on. van Driel
- Weak MgII absorbers are due to LSBGs. le Brun
- Optical Cirrus can look like a LSBG; we have to be careful. Guhathakurta
- UV is the best place to look for diffuse light from space. Henry
- There exists galaxies at  $z = 6.8$ . Lanzetta
- But  $(1 + z)^4$  is 9 magnitudes; they should be invisible. Disney
- HDF fluctuations do not allow many LSBGs. Vogeley
- How do we get absorption spectra of very LSBGs?
- The 'flat'  $\varphi(\mu_0)$  of McGaugh is NOT the  $\varphi(\mu_0)$  distribution at a given  $h$  or  $L$  nor integrated over all galaxies. de Jong
- Does CDM make ANY predictions that cannot be fudged?