



The 2009 Napa Meeting

Conference
Summary





The Boss Man is Excited

Tuesday, December 25, 12

My (not especially useful) opinions:

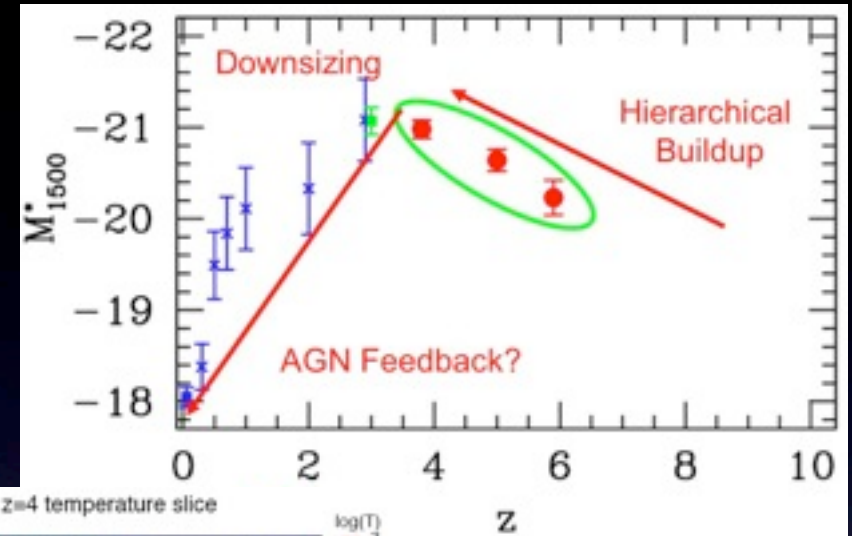
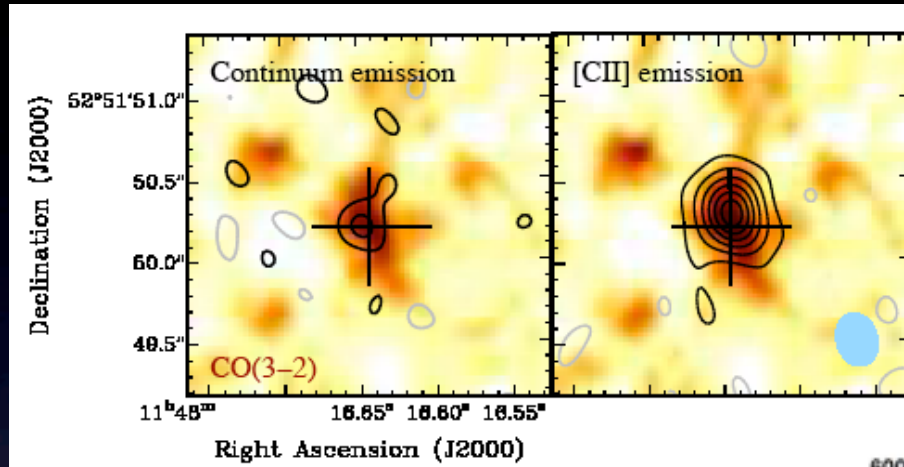
- What was good:
 - Amazing organizing (read: plenty of wine)
 - Lots of time for discussion (time for wine)
 - Great speakers and interesting topics (need for wine)

My (not especially useful) opinions:

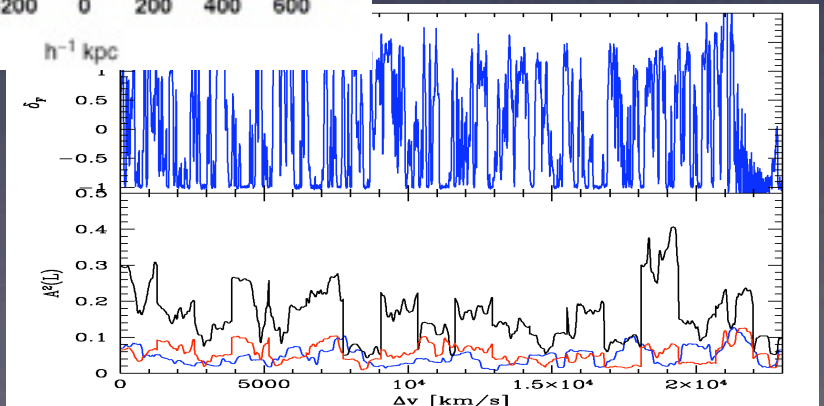
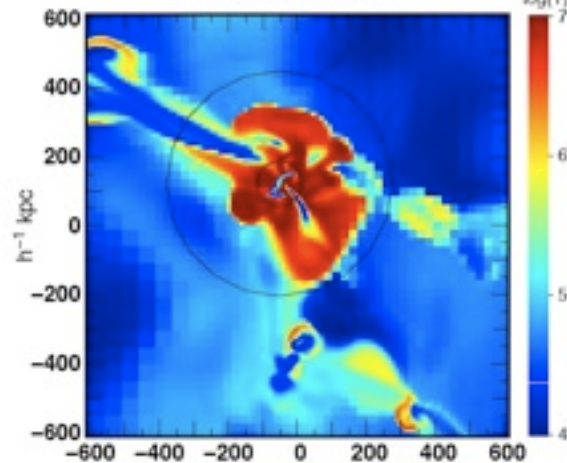
- What can we work on for next time?
 - More debate!
(where was that throw-down?)
 - Coffee in the back of the room, ASAP

Now, actual summary....

Day 1: $z > 2$ & Galaxies in Formation



- Xiahou Fan & Yuexing Li:
z~6 QSO observations & theory
- Giovanni Fazio:
Spitzer Extended: Outlook
- Garth Illingworth & Richard Bouwens:
SFH & Galaxies at $z > 2$
- Sagegh Khochfar:
Models of these and $z \sim 2$ galaxies
- Claude-Andre Faucher-Giguere & Adam Lidz:
Reionizing backgrounds & IGM thermal history



Day 1: $z > 2$ & Galaxies in Formation



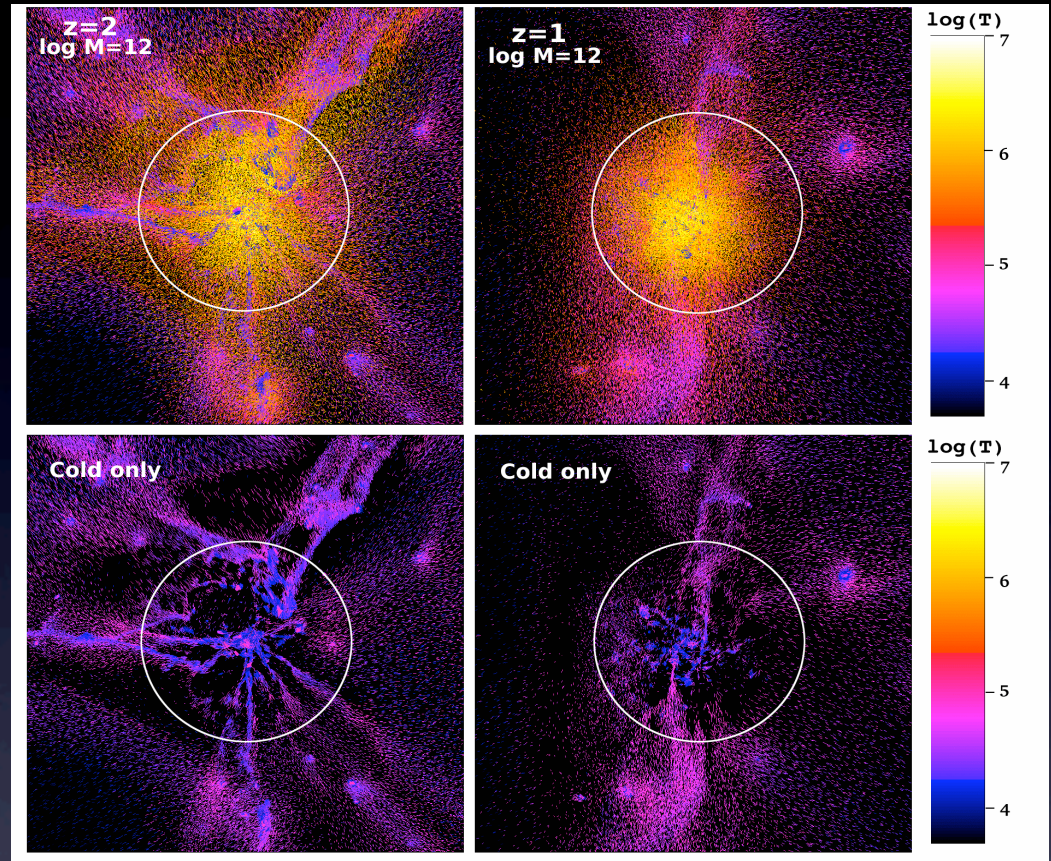
Wine Analogy



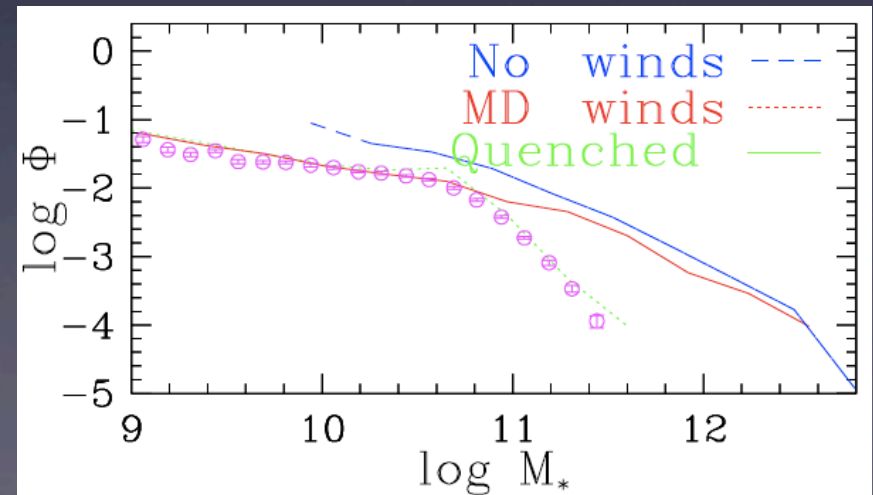
- Xiahoui Fan & ...
 $z \sim 6$ QSO o
 - Giovanni Fazio
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Models of these and $z \sim 2$ galaxies
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Reionizing backgrounds & IGM thermal history
- Hydrogen reionization: a very fine wine, but needs to age before we can fully enjoy it (wait for 21 cm data?)
e.g. 2006 Cabernet Sauvignon Pedregal (96-100):
"Sensationally concentrated, with a skyscraper-like intensity and a soaring flavor profile, this is a prodigious effort that should hit its apogee in 5-7 years and last for 25 or more".
 - Helium reionization: young and ripe, ready to drink now!
e.g. 2005 Slingshot Napa Valley Cabernet Sauvignon:
"Expressing lively flavors of blueberry, cigar smoke, vanilla and plum this is delicious now. No excessive aging needed here just pop the cork and enjoy."

Day 1: $z > 2$ & Galaxies in Formation

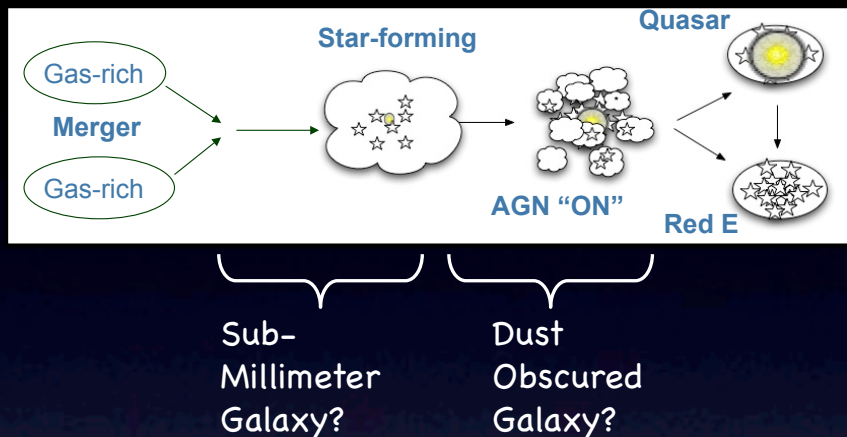
M82: Spitzer 8μ



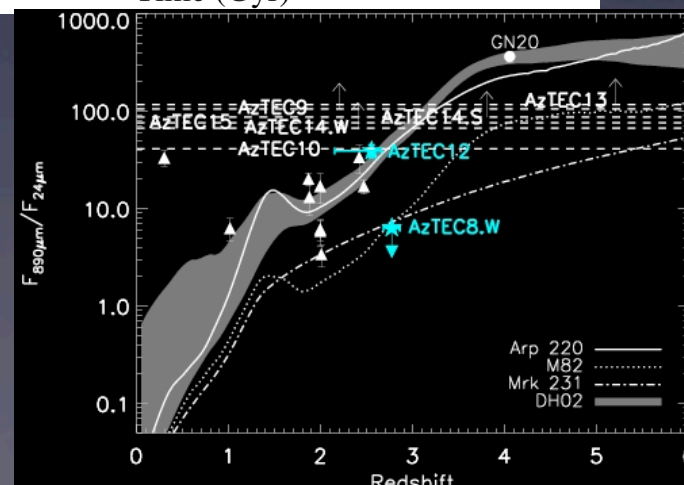
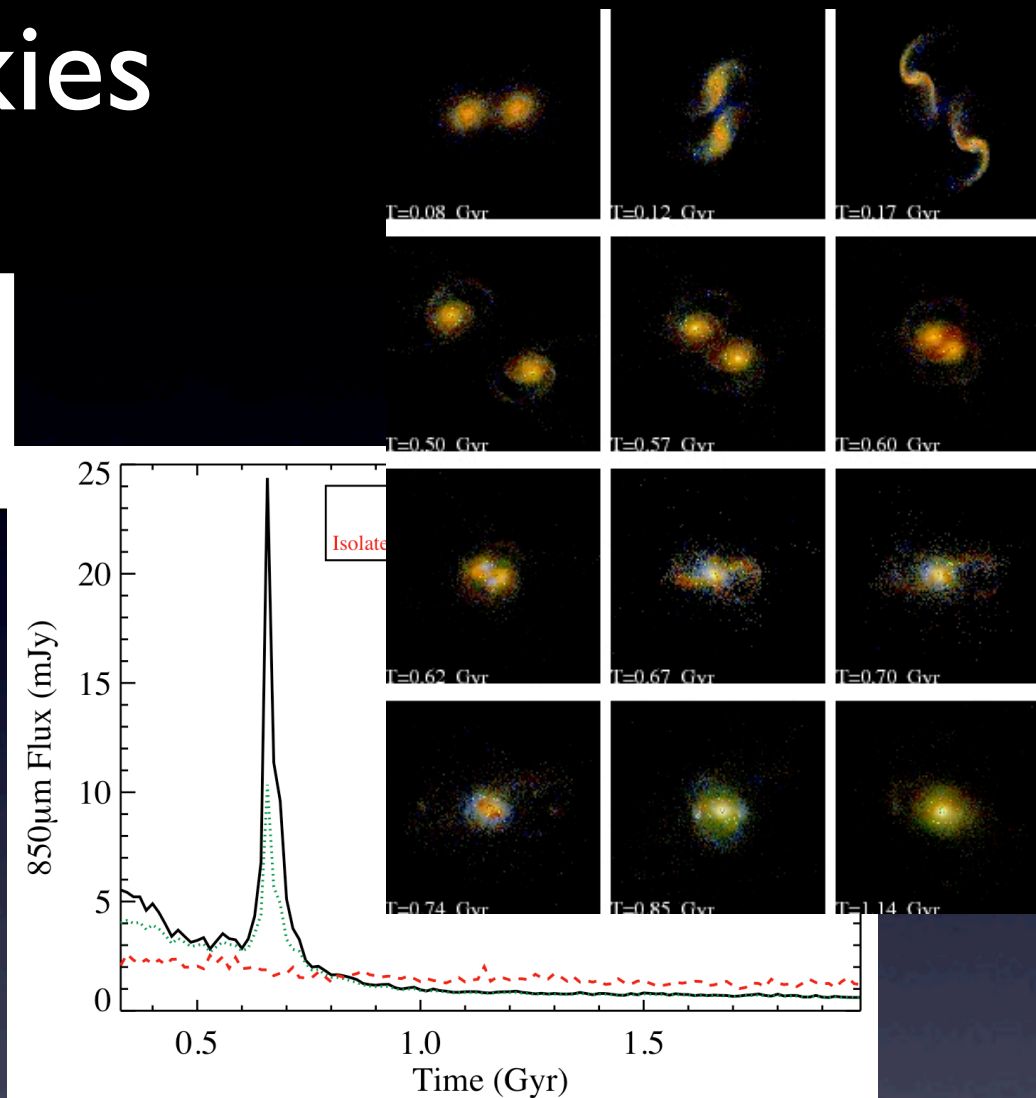
- Dusan Keres & Romeel Dave:
Accretion & outflows in simulations
- Rachel Somerville:
SAMs & the QLF/BHMF
- Claire Max:
NGC 6240 in detail
- Chung-Pei Ma:
DM merger & accretion histories



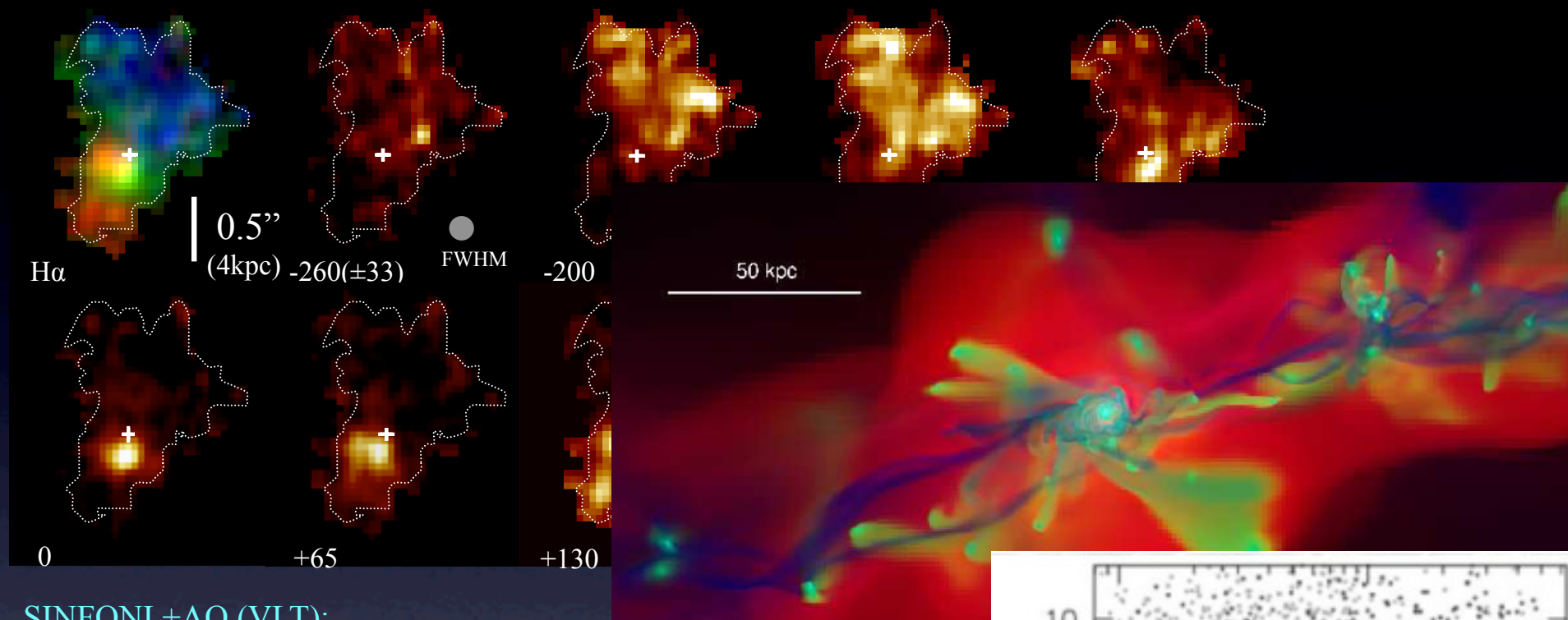
Day 2: $z \sim 2$ Galaxies



- Arjun Dey & Mark Brodwin:
DOGs (bump, power-law, ?)
- Jiasheng Huang:
Physical properties of $z \sim 2$ ULIRGs
- Desika Narayanan:
Forming SMGs in simulations
- Josh Younger:
SMG Interferometric observations

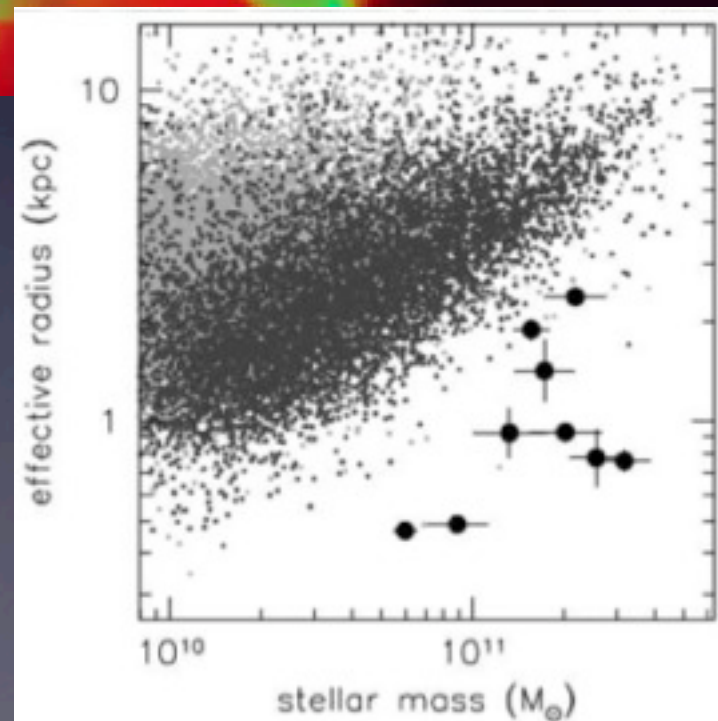


Day 2: $z \sim 2$ Galaxies



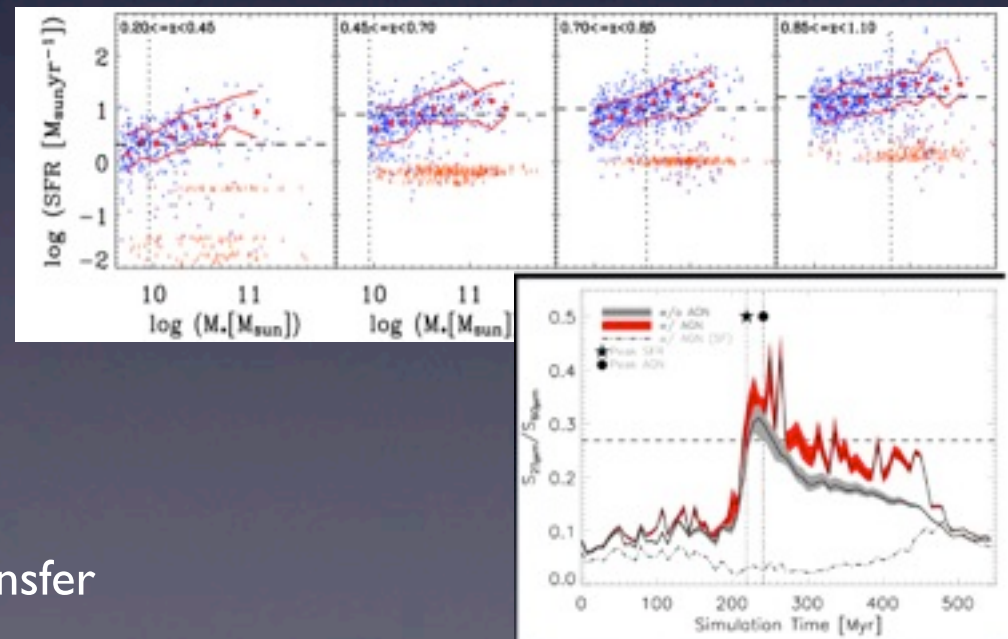
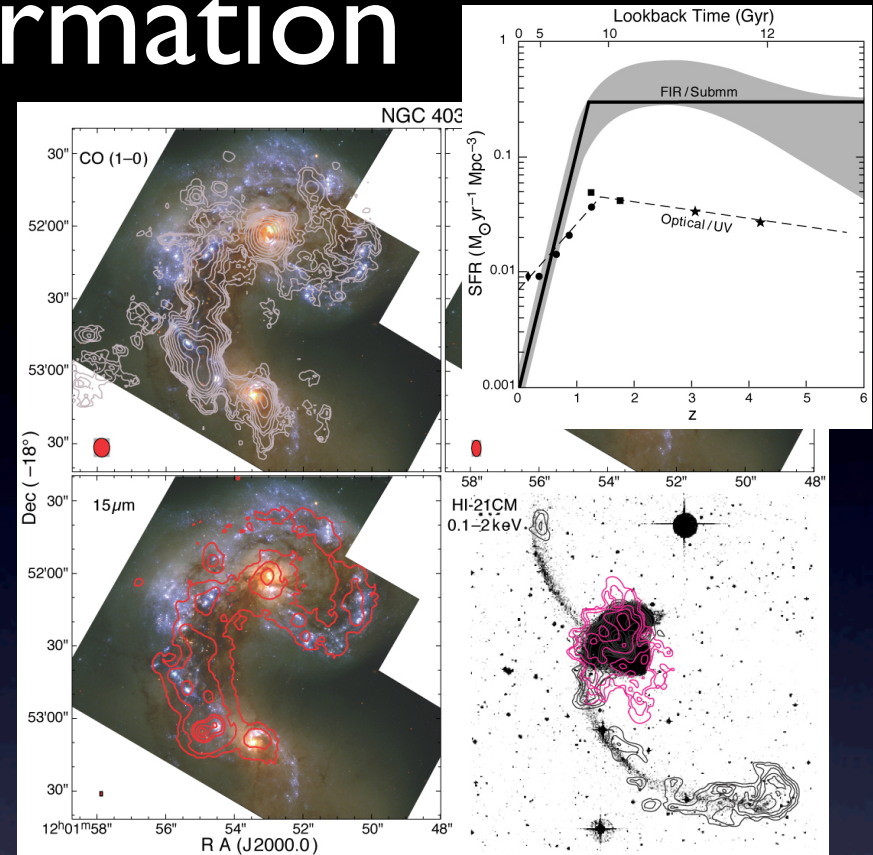
SINFONI +AO (VLT):
0.2'' (1.6 kpc) resolution

- Reinhard Genzel & Linda Tacconi:
 $z \sim 2$ Galaxy disks, structure, & evolution
- Stijn Wuyts:
Observed vs. simulated $z \sim 2$ populations
- Dawn Erb:
Properties of low-mass, low-metal galaxies



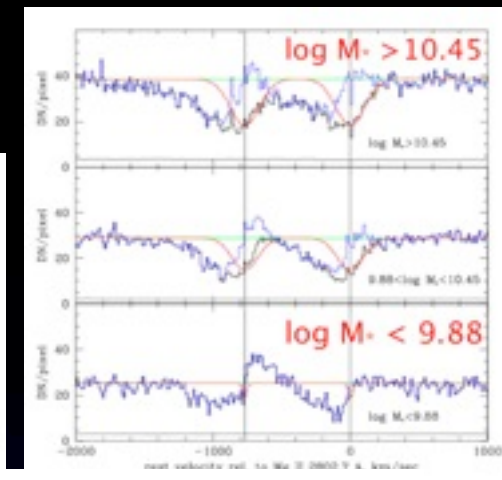
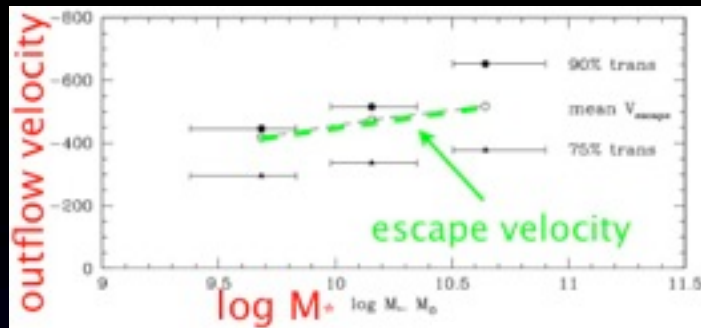
Day 3: ISM & Star Formation

- Dave Sanders & Zhong Wang:
Role of LIRGs/starbursts & their evolution
- Kai Noeske:
The “main sequence” of star formation
- Shardha Jogee:
Merger rates & merger-induced SF
- Brant Robertson:
Modeling SF from molecular gas
- Patrik Jonsson & Chris Hayward:
SUNRISE & modeling IR SEDs
- Lisa Kewely:
Metallicity & gas flows in mergers
- Sukanya Chakrabarti:
Disk galaxies: spirals & radiative transfer

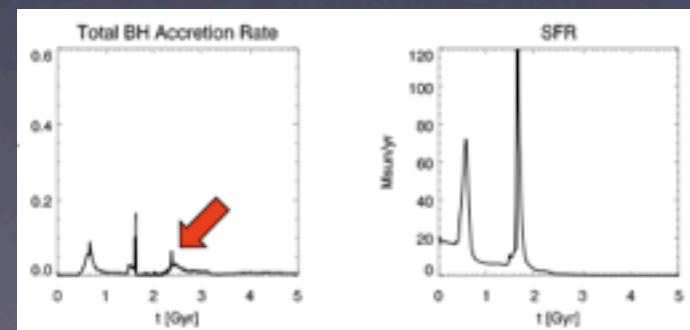
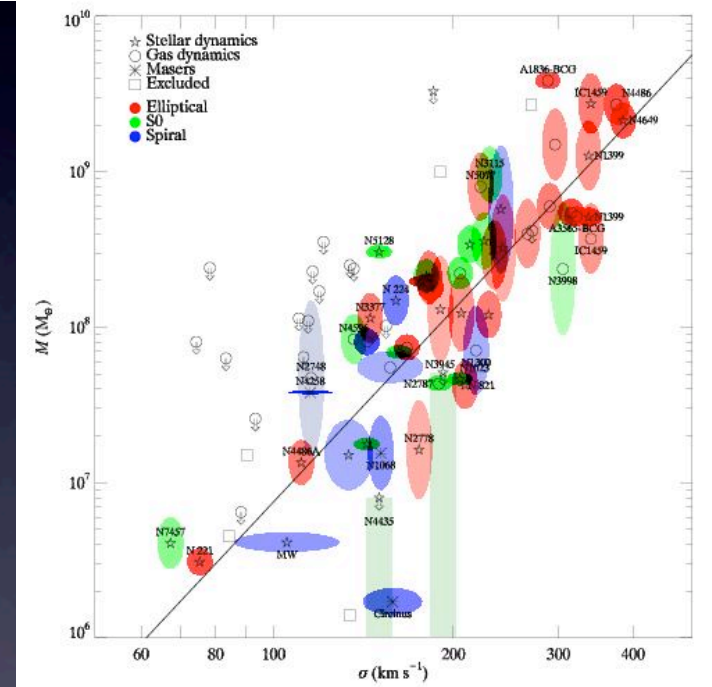




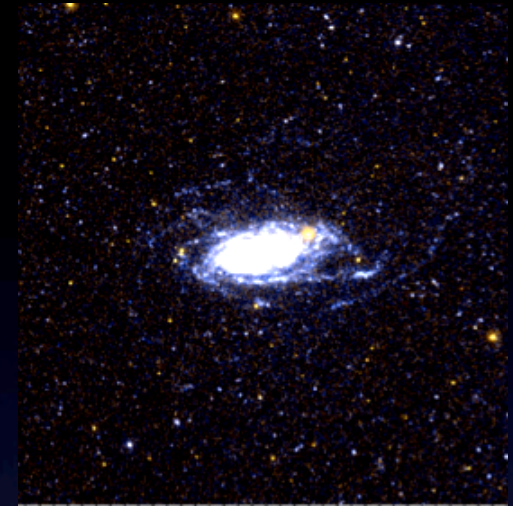
Day 3: Feedback & BHs



- Eliot Quataert:
FB from radiation pressure & new methods
- Alison Coil & Crystal Martin:
Galactic winds at $z \sim 1$ and nearby
- Tod Lauer:
BH demographics & some cautions
- Priya Natarajan:
Looking for the “seed” populations?
- Brandon Kelly:
BHMF of broad-line QSOs
- Paul Martini:
AGN in clusters: evolution & demographics
- Laura Blecha:
BH recoil & the effects on accretion

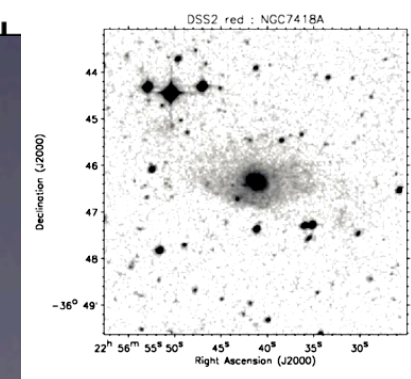
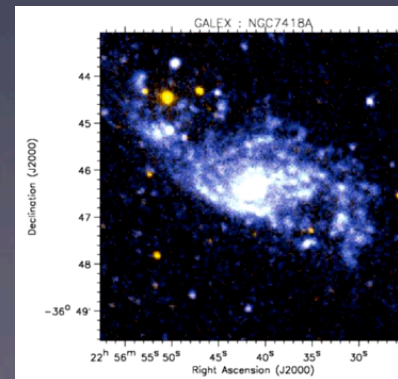
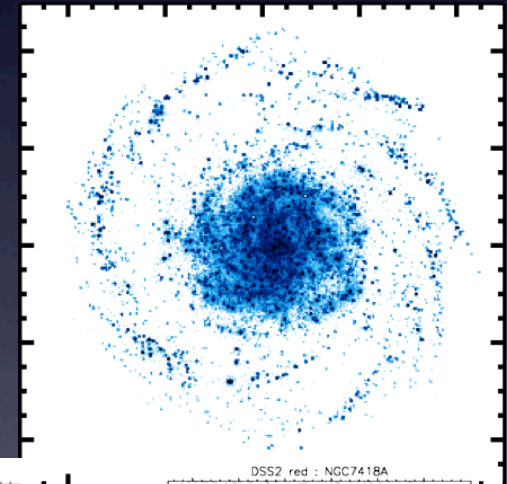


Day 4: Disks & the Local Universe



Thilker et al. (2007)

- Philip Hopkins:
....ZZZZZZZZZ.....
- Stephanie Bush & Dennis Zaritsky:
Outer disks: star formation & scaling laws
- Gurtina Besla:
Asymmetric XUV disks: ram pressure?
- Elena D'Onghia:
How did dSph's come to the MW?
- Nitya Kallivaylil:
Mapping the MW phase-space



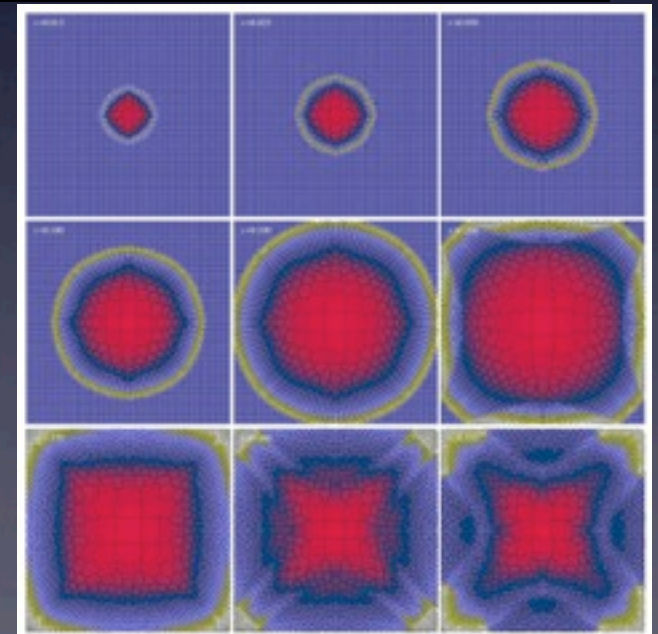
Day 5: Mergers & Remnants

T = 0 Myr

Gas



- Ann Zabludoff & Greg Snyder:
Post-starburst galaxies: observations & sims
- Betsy Barton:
Pairs: quenching & triggered star formation
- Barry Rothberg:
Observations of local remnant kinematics
- TJ Cox & Loren Hoffmann:
Kinematics of remnants in simulations
- Lars Hernquist:
New codes to make us all revisit our conventional wisdom



What's the Message?

- Things seem to be fitting together in a reasonably coherent picture!
- Some corrections, to be sure:
 - Secular processes / clump formation / thick disks
 - Role of cold flows in “hot halos”
 - Understanding radiative transfer
 - Corrections & interesting regimes of star formation
- BUT,
 - Disk/Merger/Bulge “concept” seems to hold
 - Star forming “normal” galaxies & merging “extreme” galaxies seems to be the pattern even at high- z
 - K-S law appears to hold -- questions of gas supply & removal
 - Getting better at making “realistic” galaxies (or at least at building the tools to *check*):
is theory starting to “catch up” to observations?

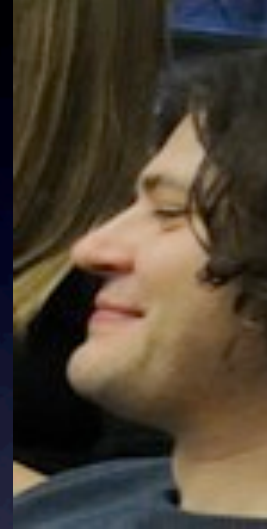
Where to Go from Here?

- Need to continue putting simulations & observations on the same footing to construct fair comparisons
- Simulations:
 - Better SF models
 - More cosmological “live” systems
 - Improved feedback prescriptions
 - RT (ideally in real-time...?)
- Observations:
 - Continue pushing (high- z , low- M , etc)
 - Tell us how to model feedback!
 - Some things may not be well-defined at factor ~ 2 ... need to think carefully about how to combine different constraints

Thanks



Lars, Giovanni,
the SAO, &
the Keck Foundation



Wine Czar:
Dusan Keres



Chief logo/nametag
designers & co-organizers:
Laura Blecha
Gurtina Besla

Thanks

and of course,
Desika “Boss Man”
Narayanan

&

Amanda Preston

