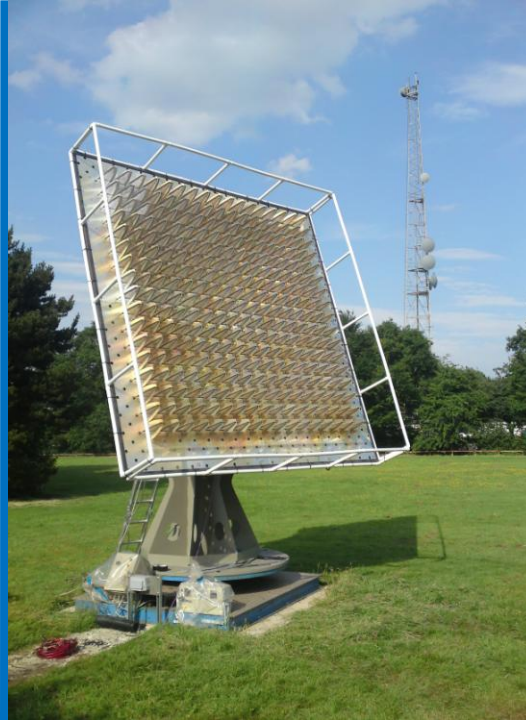


# PrepSKA Program Work



PrepSKA WP2:

Station Processing  
 High Performance Computing  
 Calibration of Aperture Arrays  
 Software Methodology  
 Kristian Zarb Adami  
 kza@astro.ox.ac.uk

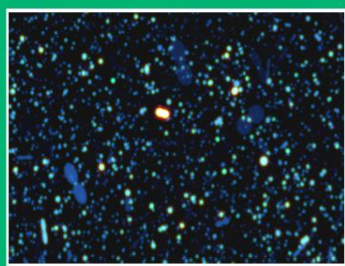


## Extragalactic Sky Simulations

to aid in the design and plan for the science return of future radio telescopes



Known and extrapolated  
 luminosity functions  
 ↓  
 DM density field with  
 large-scale clustering  
 ↓  
 Continuum properties of  
 275,000,000 galaxies,  
 five source types

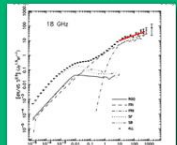


Continuum Simulation (Wilman et al.)

Millennium Sim DM skeleton  
 ↓  
 Galaxy semi-analytics  
 ↓  
 Physical prescription to  
 separate atomic and  
 molecular gas

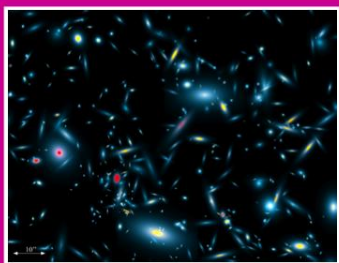
Evolving HI and CO line  
 properties of 30,000,000  
 galaxies

FoV and  $S_{\text{limit}}$  match those  
 of plausible full-scale SKA

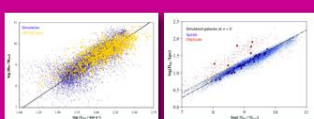


Matches/predicts  
 low/high-z  
 source counts

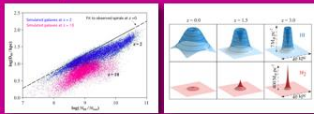
Has now been  
 extended to IR!



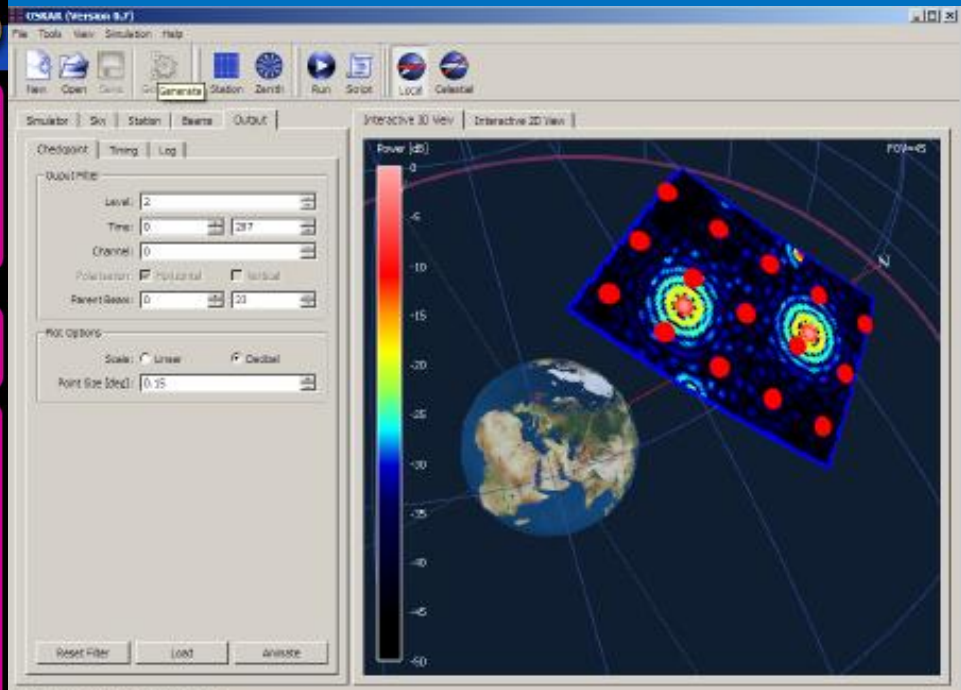
Line Simulation (Obreschkow et al.)



Reproduces low-z observables



Predictions of strong cosmic evolution



# Oxford SKA Group

## • Science

- Steve Rawlings (PI)

- Aris Karastergiou



- Danail Obreschkow



- Hans-Rainer Klöckner



- Ian Heywood



- Roger Deane



- Tom Mauch



## • Calibration & Simulation

- Stef Salvini (PI)



- Ben Mort

- Chris Williams

- Fred Dulwich



- Vassily Khlebnikov

## Hardware

- Mike Jones (PI)

- Adam Baird

- Danny Price



- Jack Hickish

- Kris Zarb-Adami



- Richard Armstrong



- Sascha Schediwy







# SKADS Simulations



<http://s-cubed.physics.ox.ac.uk/>

**Already being used as inputs for telescope simulations**

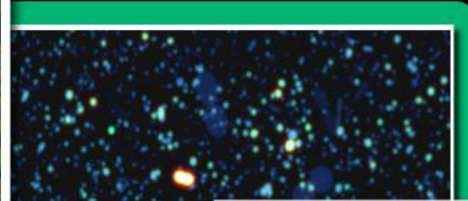
HI / CO papers in prep. by Auld (Cardiff) and Heywood (Oxford)



Herschel



LOFAR



SKA



eMERLIN



MeerKAT



ASKAP



ALMA



Line Simulation (Obreschkow et al.)



EVLA

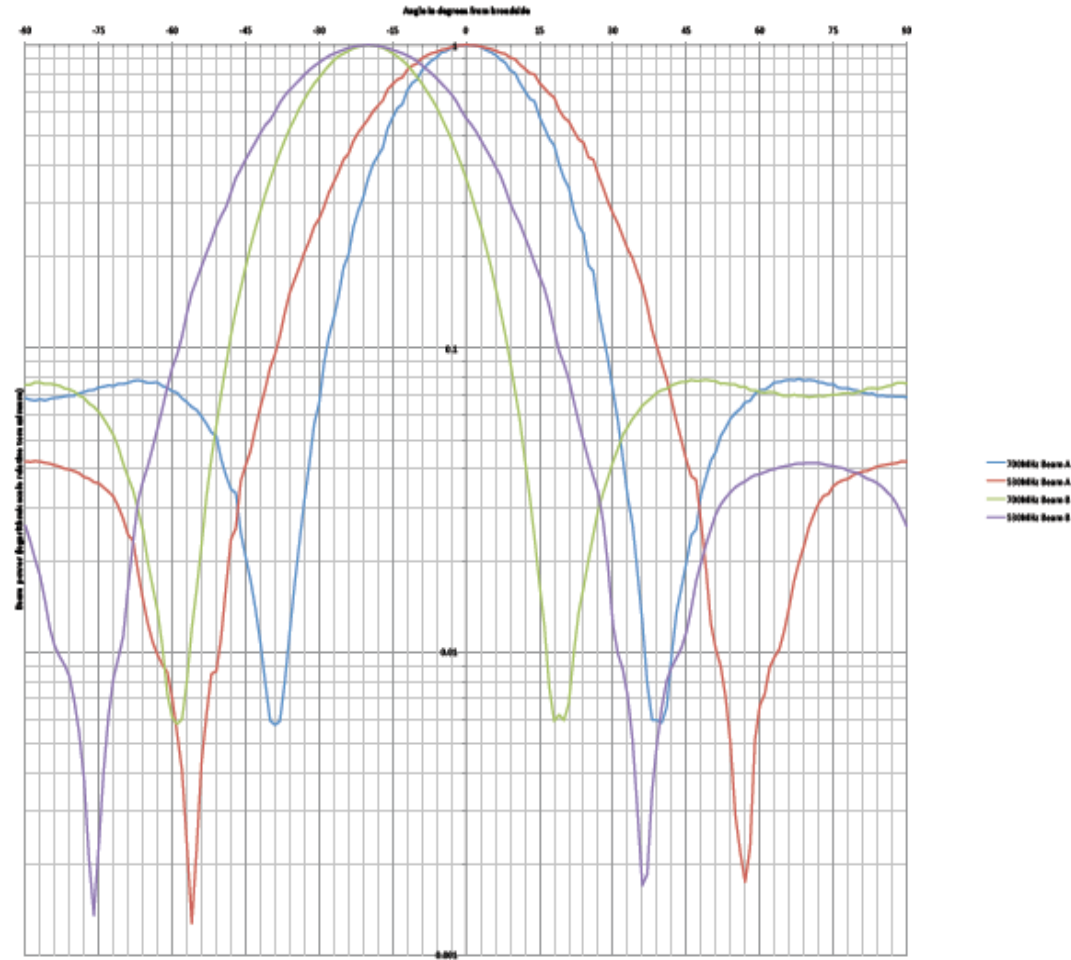
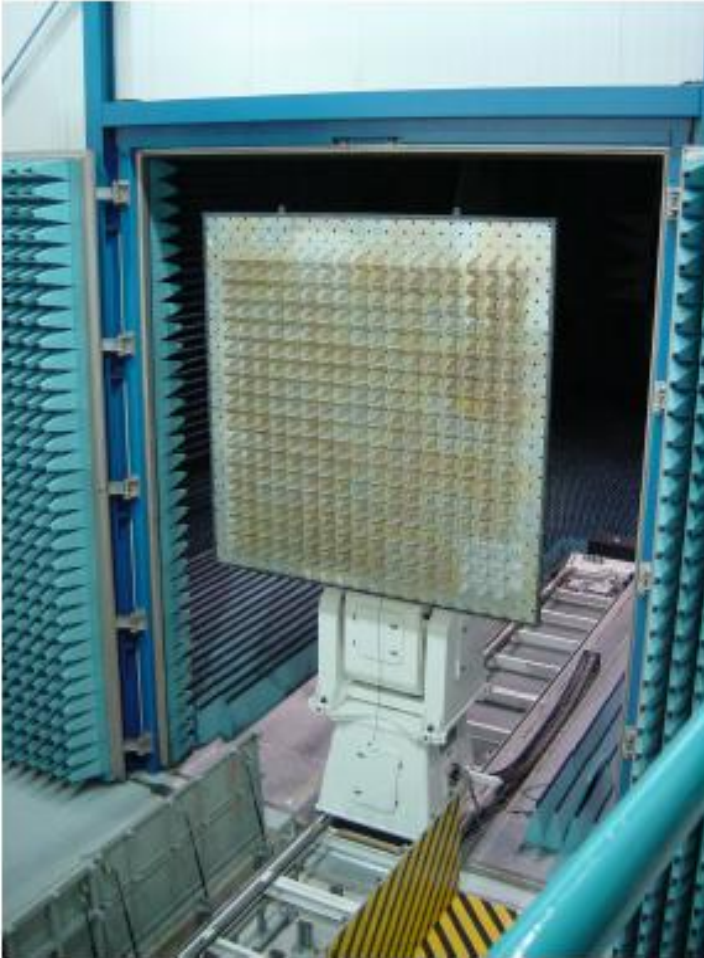
[ianh@astro.ox.ac.uk](mailto:ianh@astro.ox.ac.uk)



# Station Processing



<http://2-pad.physics.ox.ac.uk/>



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# Simulation and Calibration



<http://www.oerc.ox.ac.uk/resources/astro-software-repository-service>

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