

Virgo Consortium Meeting

Wednesday-Thursday 4-5/Dec/02

ICC, Physics Department, Durham 2:15 pm

Wednesday

2:00	–	2:10	Introduction (new procurement, etc)	Carlos
2:10	–	2:20	Developments at MPA	Simon
2:20	–	2:30	Developments at McMaster	Hugh
2:30	–	3:00	High resolution halos-I	Adrian
3:00	–	3:30	High resolution halos-II	Julio
3:30	–	3:50	Substructure in halos	Gao
3:50	–	4:20	Coffee/tea	
4:20	–	4:50	Super-Gadget	Volker
4:50	–	5:20	SPH in Hydra-MPI	Rob T
5:20	–	5:50	Multi-timestepping SPH	Frazer
5:50	–	6:05	Update on COSMA operations	Lydia
7:30	–		Dinner at Thai restaurant	all

Thursday

9:00	–	9:30	Review of work at Munich	Simon
9:30	–	10:00	The Ly- α forest	Tom
10:00	–	10:30	Feedback, superwinds, metals	Scott
10:30	–	11:00	Individual galaxies	Takashi
11:00	–	11:30	The 3D Movie and Coffee	
11:30	–	12:00	Individual galaxies	Rob T
12:00	–	1:00	Future science programme I	
	–		Hydra-MPI	all+Gavin
	–		Gas programme	
	–		Additional physics (multi-phase, radiative trans, dust, etc)	
1:00	–	2:00	Lunch	
2:00	–	3:00	Future science programme II	
	–		Halos project	
	–		The Millennium run	
	–		Other dark matter programmes	
	–		The next procurement	
3:00	–	3:30	Comparison of SPH and semi-analytics	John H.
3:30	–	4:00	Mock catalogues from Virgo DM runs	Shaun
4:00	–	4:30	Tea	
4:30	–	5:00	Scale-free and non-linear evol	Rob S/John P
5:00	–	5:30	Short contributions	Joerg, Brendan, Peter W
5:30	–		END	

Participants:

Carlton Baugh

Craig Booth

Richard Bower

Joerg Colberg

Shaun Cole

Hugh Couchman (?)

Vince Eke

Carlos Frenk

John Helly

Brendan Hogg

Adrian Jenkins

Martin Jubelgas

Scott Kay

Gao Liang

Rowena Malbon

Julio Navarro

Takashi Okamoto

Nelson Padilla

John Peacock

Frazer Pearce

Gavin Pringle

Robert Smith

Volker Springel

Rob Thacker

Tom Theuns

Peter Thomas

Peter Watts

Simon White

Vicent Quilis

Virgo publications: 1997–

This list includes papers written by the Virgo consortium and associates making extensive use of Virgo data.

Refereed journals:

- Abadi M., Moore B. & Bower R.G. 1999. Ram pressure stripping of spiral galaxies in clusters, MNRAS, 308, 947.
- Bartelmann, M., Huss, A., Colberg, J. M., Jenkins, A., & Pearce, F. R. 1998. Arc statistics with realistic cluster potentials. IV. Clusters in different cosmologies, A&A, 330, 1.
- Benson, A.J., Cole, S., Frenk, C.S., Baugh, C. & Lacey, C. 2000a. The Nature of Galaxy Bias and Clustering, MNRAS, 311, 793.
- Benson, A. J., Baugh, C., Cole, S., Frenk, C. S. & Lacey, C. 2000b. The dependence of Velocity and Clustering Statistics on Galaxy properties, MNRAS, 316, 107.
- Benson, A. J., Pearce, F. R., Frenk, C. S., Baugh, C. M. & Jenkins, A. 2000c. A Comparison of Semi-Analytic and Smoothed Particle Hydrodynamics Galaxy Formation, MNRAS, 320, 261-280.
- Calcano-Roldan C., Moore B., Bland-Hawthorn J., Malin D. & Sadler E. 2000. Galaxy destruction and diffuse light in clusters, MNRAS, 314, 324.
- Canavezes, A. Springel, V., Oliver, J., Rowan-Robinson, M., Keeble, O. White, S. D. M., Saunders, W., Efstathiou, G., Frenk, C. S., McMahon, R., Maddox, S., Sutherland, W. & Tadros, H. 1998. The topology of the IRAS Point Source Catalogue redshift survey, MNRAS, 297, 777.
- Ciardi, B., Ferrara, A., Governato, F. & Jenkins, A., 2000, Inhomogeneous Reionization Regulated by Radiative and Stellar Feedbacks, MNRAS, 314, 611.
- Colberg, J. M., White, S. D. M., Jenkins, A. & Pearce, F. R. 1999. Linking cluster formation to large-scale structure, MNRAS, 308, 593.
- Colberg, J. M., White, S. D. M., MacFarland, T. J., Jenkins, A., Pearce, F. R., Frenk, C. S., Thomas, P. A. & Couchman, H. M. P. 2000. Peculiar Velocities of Galaxy Clusters, MNRAS, 313, 229.
- Colberg, J. M., White, S. D. M., Yoshida, N., MacFarland, T. J., Jenkins, A., Frenk, C. S., Pearce, F. R., Evrard, A. E., Couchman, H. M. P., Peacock, J. A. & Thomas, 2000, The Clustering of Clusters in CDM Universes, MNRAS, 319, 209.
- Colombi, S., Szapudi, I., Jenkins, A. & Colberg, J. M. 2000. Experimental Cosmic Statistics I : Variance, MNRAS, 313, 711.
- da Silva, A. C., Kay, S. T., Liddle, A. R., Thomas, P. A., Pearce, F. R. & Barbosa, D., 2001, The impact of cooling and heating on the Sunyaev-Zel'dovich effect, ApJ, 561, L15.
- Diaferio A., Kauffmann G., Colberg J. M., White S. D. M., 1999, Clustering of Surveys, MNRAS, 307, 537.
- Evrard, A. E., MacFarland, T. J., Couchman, H. M. P., Colberg, J. M., Yoshida, N., White, S. D. M., Jenkins, A., Frenk, C. S., Pearce, F. R., Efstathiou, G., Peacock, J. A. & Thomas,

- P. A. 2002, Galaxy Clusters in Hubble Volume Simulations: Cosmological Constraints from Sky Survey Populations, *Astrophys. J.*, 573, 7
- Frenk, C. S., White, S. D. M., Bode, P., Bond, R. J., Bryan, G. L., Cen, R., Couchman, H. M. P., Evrard, A. E., Gnedin, N. Jenkins, A., Khokhlov, A. M., Klypin, A., Navarro, J. F., Norman, M. L., Ostriker, J. P., Owen, J. M., Pearce, F. R., Pen, U.-L., Steinmetz, M., Thomas, P. A., Villumsen, J. V., Wadsley, J. W., Warren, M. S., Xu, G. & Yepes, G. 1999. The Santa Barbara cluster comparison project: a test of cosmological hydrodynamics codes, *Astrophys. J.*, 525, 524.
- Ghigna S., Moore B., Governato F., Quinn T., Stadel J. & Lake G. 1998. Dark matter halos in clusters, *MNRAS*, 300, 146.
- Ghigna S., Moore B., Quinn T. & Stadel J. 1999. On the structure and substructure of dark matter halos: Converging results with increasing numerical resolution, *MNRAS*, 2000, 544, 616.
- Hamana, T., Yoshida, N., Suto, Y, & Evrard, A. E., 2001, *Clustering of dark matter halos on the light cone: scale, time and mass dependence of the halo biasing in the Hubble Volume simulations*, *ApJ (lett)*, 561, L143
- Jain, B., Seljak, U. & White, S. D. M., 2000, Ray Tracing Simulations of Weak Lensing by Large-scale Structure, *Astrophys. J.*, 530, 547.
- Jenkins, A., Frenk, C. S., Pearce, F. R., Thomas, P. A., Colberg, J. M., White, S. D. M., Couchman, H. M. P., Peacock, J. A., Efstathiou, G., & Nelson, A. H. 1998. Evolution of structure in cold dark matter universes, *Astrophys. J.*, 499, 20.
- Jenkins, A., Frenk, C. S., White, S. D. M., Colberg, J. M., Cole, S., Evrard, A. E., Couchman, H. M. P. & Yoshida, N., 2001. The mass function of dark matter haloes, *MNRAS*, 321, 372.
- Kauffmann, G., Colberg, J. M., Diaferio, A. & White, S. D. M. 1999. Clustering of Galaxies in a Hierarchical Universe I: Methods and Results at $z=0$, *MNRAS*, 303, 188.
- Kauffmann G., Colberg J. M., Diaferio A., White S. D. M., 1999. Clustering of Galaxies in a Hierarchical Universe: II. Evolution to High Redshift, *MNRAS*, 307, 529.
- Kauffmann G., Colberg J. M., Diaferio A., White S. D. M., 1999. Clustering of Galaxies in a Hierarchical Universe: I. Methods and Results at $z = 0$, *MNRAS*, 303, 188.
- Kay, S. T., Pearce, F. R., Jenkins, A., Frenk, C. S., White, S. D. M., Thomas, P. A., Couchman, H. M. P., 2000, Parameter tests within cosmological simulations of galaxy formation, *MNRAS*, 316, 374.
- Kay, S. T., Pearce, F. R., Frenk, C. S. & Jenkins, A. 2002, Including star formation and supernova feedback within cosmological simulations of galaxy formation, *MNRAS*, 330, 113
- Kay, S. T., Liddle, A. R. & Thomas, P. A., 2001, Sunyaev-Zel'dovich predictions for the Planck Surveyor satellite using the Hubble Volume simulations, *MNRAS*, 325, 835.
- MacFarland, T, Couchman, H. M. P., Pearce, F. R., Pichlmeier, J. 1999. A New Parallel P³M Code for Very Large-Scale Cosmological Simulations, *New Astronomy*, 3, 687.
- Moore B. 1999. The dark side of the universe. *Phil.Trans.Roy.Soc.*, 357, no. 1763, 3259.
- Moore B., Ghigna S., Governato F., Lake G., Quinn T., Stadel J. & Tozzi P. 1999. Dark matter

- substructure in galactic halos, *ApJ Letters*, 524, 19-22.
- Moore B., Governato F., Quinn T., Stadel J. & Lake G. 1998. Resolving the structure of cold dark matter halos, *Astrophys. J. Lett.*, 499, L5.
- Moore B., Lake G., Quinn T. & Stadel J. 1999. On the survival and destruction of spiral galaxies in clusters, *MNRAS*, 304, 465.
- Moore B., Quinn T., Governato F., Stadel J. & Lake G. 1999. Cold collapse and the core catastrophe, *MNRAS*, 310, 1147.
- Moore, B., Gelato, S., Jenkins, A., Pearce, F. R. & Quillis, V., 2000, Collisional versus Collisionless Dark Matter, *Ap.J Lett*, 535, 21.
- Muanwong, O., Thomas, P. A., Kay, S. T., Pearce, F. R. & Couchman, H. M. P., 2001, The effect of radiative cooling on scaling laws of X-ray groups and clusters, *ApJ*, 552, L27.
- Pearce, F. R., 1998, Placing stars within cosmological simulations, \AA , submitted.
- Pearce, F. R. & Couchman, H. M. P. 1997. Hydra: an adaptive parallel grid code, *New Astronomy*, 2, 411.
- Pearce, F. R., Couchman, H. M. P., Thomas, P. A., Edge, A. C., 2000. The effect of radiative cooling on the radial density and temperature profiles of galaxy clusters, *MNRAS*, 317, 1029.
- Pearce, F.R., Jenkins, A., Frenk, C.S., Colberg, J.M., White, S.D.M., Thomas, P.A., Couchman, H.M.P, Peacock, J.A., & Efstathiou, G. (The Virgo Consortium), 1999. *A simulation of galaxy formation and clustering*, *Astrophys. J. Lett.*, 521, 99.
- Pearce, F. R., Jenkins, A., Frenk, C. S., White, S. D. M., Thomas, P.A., Couchman, H. M. P., Peacock, J. A., & Efstathiou, G. 2001, Simulations of galaxy formation in a cosmological volume, *MNRAS*, 326, 649
- Pearce, F. R., Jenkins, A., Frenk, C. S., White, S. D. M., Thomas, P. A., Couchman, H. M. P., Peacock, J. A. & Efstathiou, G., 2001, *MNRAS*, 326, 649.
- Power, C., Navarro, J. F., Jenkins, A., Frenk, C. S., White, S. D. M., Springel, V., Stadel, J. and Quinn, T., 2002, The inner structure of LCDM haloes - I: A numerical convergence study, *MNRAS*, in press.
- Scoccimarro, R., Couchman, H.M.P. & Frieman, J.A., 1999. The bispectrum as a signature of gravitational instability, *Astrophys. J.*, 517, 531.
- Springel, V., White, S. D. M., Colberg, J. M., Couchman, H. M. P., Efstathiou, G., Frenk, C. S., Jenkins, A. R., Pearce, F. R., Nelson, A. H., Peacock, J. A. & Thomas, P. A. 1997. Genus statistics of the Virgo N-body simulations and the 1.2Jy redshift survey, *MNRAS*, 298, 1169-1188.
- Szapudi, I., Colombi, S., Jenkins, A. & Colberg, J. M. 2000. Experimental Cosmic Statistics II : Distribution, *MNRAS*, 313, 725.
- Theuns, T., Leonard, A. & Efstathiou, G., 1998, The low redshift evolution of the Lyman- α Forest, *MNRAS*, 297, L49.
- Theuns, T., Leonard, A., Efstathiou, G., Pearce, F. R. & Thomas, P. A., 1998, P³M-SPH simulations of the Lyman- α Forest, *MNRAS*, 301, 478.

- Theuns T., Leonard A., Schaye J., Efstathiou, G., 1999, Dependencies of QSO Lyman-alpha absorption line statistics on cosmological parameters, MNRAS, 303, L58.
- Thacker, R. J., Tittley, E. R., Pearce, F. R., Couchman, H. M. P., Thomas, P. A., 2000. Smoothed Particle Hydrodynamics in cosmology: a comparative study of implementations, MNRAS, 319, 619.
- Thomas, P., Couchman, H., Jenkins, A., Pearce, F., Frenk, C. S., White, S. D. M., Colberg, J., Peacock, J., Efstathiou, G. & Nelson, A. 1998. The structure of clusters in different cosmologies, MNRAS, 296, 1061.
- Thomas, P. A., Muanwong, O., Pearce, F. R., Couchman, H. M. P., Edge, A. C., Jenkins, A. & Onuora, L., 2001. A simulated TCDM cosmology cluster catalogue: the NFW profile and the temperature-mass scaling relations, MNRAS, 324, 450.
- Yoshida, N., Colberg, J., White, S. D. M., Evrard, A. E., MacFarland, T. J., Couchman, H. M. P., Jenkins, A., Frenk, C. S., Pearce, F. R., Efstathiou, G., Peacock, J. A. & Thomas, P. A., 2001, MNRAS, 325, 803.

Non-Virgo papers making significant use of Virgo data

- Benson, A. J.; Nusser, A; Sugiyama, N. & Lacey, C. G, 2001, Non-uniform reionization by galaxies and its effect on the cosmic microwave background, /mn, 320, 153.
- Canavezes, A. & Sharpe, J., 2001, Recovering the Topology of the Initial Density Fluctuations Using the IRAS Point Source Catalogue Redshift Survey, MNRAS, 326, 209.
- Hoyle, F., Baugh, C. M., Shanks, T. & Ratcliffe, A., 1999, The Durham/UKST Galaxy Redshift Survey - VI. Power spectrum analysis of clustering, /mn, 309, 659.
- Norberg, P., Baugh, C.M., Hawking, E., Maddox, S., Peacock, J., Cole, S., Frenk, C.S., Bland-Hawthorn, J., Bridges, T., Cannon, R., Colless, M., Collins, C., Couch, W., Dalton, G., Driver, S.P., Efstathiou, G., Ellis, R.S., Glazebrook, K., Jackson, C., Lahav, O., Lewis, I., Lumsden, Peterson, B.A., Sutherland, W. & Taylor, K. (the 2dFGRS team) (2001), *The 2dF Galaxy Redshift Survey: Luminosity dependence of galaxy clustering*, MNRAS, 328, 64-70.
- Padilla, N.D. & Baugh, C.M., 2001, 'Clustering of clusters in redshift space', MNRAS, 329, 431.
- Peacock, J.A., Cole, S., Norberg, P., Baugh, C.M., Bland-Hawthorn, J., Bridges, T., Cannon, R.D., Colless, M., Collins, C., Couch, W., Dalton, G., Deeley, K., De Propis, R., Driver, S.P., Efstathiou, G., Ellis, R.S., Frenk, C.S., Glazebrook, K., Jackson, C., Lahav, O., Lewis, I., Lumsden, S., Maddox, S., Percival, W.J., Peterson, B.A., Price, I., Sutherland, W., Taylor, K., (the 2dFGRS team) (2001), *Measuring the cosmological mass density with clustering in the 2dF Galaxy Redshift Survey*, Nature, **410**, 169-173.
- Percival, J., Baugh, C.M., Bland-Hawthorn, J., Bridges, T., Cannon, R.D., Cole, S., Colless, M., Collins, C., Couch, W., Dalton, G., De Propis, R., Driver, S.P., Efstathiou, G., Ellis, R.S., Frenk, C.S., Glazebrook, K., Jackson, C., Lahav, O., Lewis, I., Lumsden, S., Maddox, S., Moody, S., Norberg, P., Peacock, J.A., Peterson, B.A., Sutherland, W., Tadros, H., Taylor, K. I.A. Price, M. Seaborne, (2001), *The 2dF Galaxy Redshift Survey: The power spectrum and the matter content of the universe*, MNRAS, 327, 1297-1306.

Reblinsky, K., Krusc, G., Jain, B. & Schneider, P., 1999, Cosmic shear and halo abundances: Analytical versus numerical results, *Å*, 351, 815.

Sheth, R. K. & Tormen, G., 1999, Large-scale bias and the peak background split, *MNRAS*, 308, 119.