

## CURRICULUM VITAE

**James E. Taylor**

RESEARCH INTERESTS: Theoretical & Computational Astrophysics; Dark Matter, Structure Formation, Gravitational Lensing, Galaxy Dynamics, Local Galaxies

### CONTACT INFORMATION

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N2L 3G1, Canada	/people/taylor

### PERSONAL DATA

Date of Birth: January 11, 1970      Languages: English r/w/s; French r/w/s  
Place of Birth: Helsinki, Finland  
Nationality: Canadian

### EDUCATION

1996–2001 Ph. D. (Astronomy), University of Victoria, Canada  
1993–1994 M. Sc. (Astronomy), University of Toronto, Canada  
1988–1993 B. Sc. (Mathematics & Physics), University of Toronto, Canada  
1988 French Baccalaureate (Maths & Physical Sciences), Lycée Claudel, Canada

### POSITIONS HELD

2006–present Assistant Professor, Physics & Astronomy  
University of Waterloo, Waterloo, Canada  
2004–2006 Postdoctoral Fellow (COSMOS – The Cosmic Evolution Survey),  
Astronomy, California Institute of Technology, Pasadena, USA  
2001–2004 Postdoctoral Research Assistant (Leverhulme Trust; PPARC),  
Astrophysics, University of Oxford, Oxford, United Kingdom  
1995–1996 Research Assistant, Medical Physics,  
Sunnybrook Health Science Centre, Toronto, Canada

Member of the International Astronomical Union, the Canadian Astronomical Society and the American Astronomical Society; affiliate member of the Perimeter Institute for Theoretical Physics; visitor at the Canadian Institute for Theoretical Astrophysics (CITA) and member of CITA Inc.

### GRANTS, AWARDS, SCHOLARSHIPS AND FELLOWSHIPS

2009–2014: **NSERC Discovery Grant**

- 2006–2009: **NSERC Discovery Grant**
- 2006–2007: Co-Investigator, Hubble Space Telescope  
Cycle 15 Snapshot Proposal #10881 (143 orbits)
- 2004 : **UK PPARC Postdoctoral Fellowship**
- 2001–2004: **Leverhulme Postdoctoral Fellowship**
- 1998–1999: **Petrie Memorial Fellowship**
- 1997–1998: **President’s Research Scholarship**
- 1996–1998: **NSERC Canada Postgraduate Scholarship**
- 1996–1997: **President’s Research Scholarship**

## TEACHING EXPERIENCE

- 2006–2009: Assistant Professor, University of Waterloo, Canada  
**Courses:**  
**PHY 475:** advanced undergraduate course in Astronomy & Cosmology  
**SCI 238:** introductory course in Astronomy for science majors  
**PHY 781:** graduate course in Theoretical Astrophysics  
**PHY 112:** introductory Physics for Biology/General Science undergraduates
- 2007: Guest Lecturer, Perimeter Summer School in Particle Physics, Cosmology and String Theory, Perimeter Institute, Canada  
(subject: cosmological constraints from gravitational lensing)
- 2004: Visiting Lecturer, Al Akhawayn University, Morocco  
(subject: introductory undergraduate lectures in Astronomy, sponsored by the International Astronomical Union)
- 2002: Tutor, Astrophysics, University of Oxford  
(subject: astrophysics option for physics specialists)
- 2000: Teaching Assistant, Department of Physics and Astronomy, University of Victoria (subject: astronomy for non-specialists)
- 1996–2000: Laboratory Instructor, Department of Physics and Astronomy, University of Victoria (subject: introductory practical astronomy)
- 1996–1998: Teaching Assistant, School of Continuing Studies, University of Victoria (subject: introductory practical physics)
- 1994: Lecturer and Teaching Assistant, Department of Astronomy, University of Toronto (subject: introductory astronomy)
- 1994: Marker, Department of Astronomy, University of Toronto  
(subject: astronomy for non-specialists)
- 1993–1994: Laboratory Demonstrator, Department of Physics, University of Toronto (subject: practical physics for specialists)

## PROFESSIONAL SERVICE

### **Refereeing**

- 2009: Proposal Referee for the Canadian Space Agency Space Science Enhancement Program
- 2008: Member, Gamma-Ray Large Area Space Telescope (GLAST) Fellowship Program Review Panel
- 2007-2009: Time Allocation Committee Member for SHARCNET (Ontario’s regional high performance computing network)

2002–2009: Paper Referee for The Monthly Notices of the Royal Astronomical Society, The Astrophysical Journal, Astronomy and Astrophysics, Journal of Cosmology and Astroparticle Physics, Physical Review D, and Physical Review Letters

2007: Observing Proposal Referee for the Canadian Gemini PATT

2004: Observing Proposal Referee for the UK Gemini PATT

### **Meeting Organisation**

2008: Co-organiser, *Small Scale Structure of Dark Matter*, Perimeter Institute, Waterloo

2007-2008: Local Organiser, *Particles, Strings & Cosmology III*, Perimeter Institute, Waterloo

2007: Session Chair, *TeV Particle Astrophysics 2007*, Venice, Italy

2004: Local Organiser, *The Galactic Centre* workshop, Oxford, UK

2003–2004: Local Organiser, *The Second Oxford-Princeton Workshop*, Oxford, UK

### **Other Committee Work**

2007-2009: Member of the Canadian Space Agency Designated Working Group for high energy astrophysics and head of the subcommittee for fundamental physics

2006-2009: Member of the Honorary Degree Committee, Space Committee & others, Faculty of Science, University of Waterloo

2007-2008: Chair of the Departmental Colloquium Committee, Physics & Astronomy, University of Waterloo

2006-2009: Organiser of Astronomy Seminar Series, University of Waterloo

2002–2004: Co-organiser of Astrophysics Seminar Series, University of Oxford

1999: Student Representative, Selection Committee for the Departmental Chair, University of Victoria

1997–1999: Departmental Representative, Graduate Student Union, University of Victoria

1992–1993: Representative, Faculty of Arts and Science Curriculum Committee, University of Toronto

1992–1993: Representative, Physics and Astronomy Student Union, University of Toronto

1992–1993: Representative, First Year Seminar Committee, University of Toronto

1989–1991: Elected Representative, University College Student Council, University of Toronto

### **RECENT PUBLIC OUTREACH**

08/2009: International Year of Astronomy public event, University of Waterloo

04/2009: Guest speaker, The Round Table (a current affairs discussion group for senior public servants), The Rideau Club, Ottawa

02/2009: Radio interview on dark matter and the Sudbury Neutrino Observatory, Radio-Canada (French CBC) for Northern Ontario

01–03/2009: Canadian Association of Physicists undergraduate lecture tour; selected by undergraduates to speak at 16 Canadian universities, including:

U. of Alberta, Lethbridge, Calgary, U. of Saskatchewan, Regina, Windsor, Western Ontario, Wilfrid Laurier, Guelph, Sherbrooke, Bishop's, U. of New Brunswick, U. of Prince Edward Island, Dalhousie, Memorial and Grenfell College

01/2009: Guest speaker at departmental open house to celebrate the International Year of Astronomy, University of Waterloo

08/2008: Guest speaker at 'Einstein Plus' workshop for high school physics teachers, Perimeter Institute, Waterloo

12/2007: Guest speaker, Royal Astronomical Society of Canada, Kitchener-Waterloo Chapter

11/2007: Speaker at the Ontario Science Centre's 'Café Scientifique: What is Dark Matter?', The Rivoli, Toronto

08/2007: Guest speaker at a summer workshop for high school physics teachers, Perimeter Institute

06/2007: 'Resolving the Mystery of Dark Matter', public lecture for the 50th anniversary of the University of Waterloo

02/2007: 'The Prospects for Identifying Dark Matter', introductory research talk for undergraduates, University of Waterloo

2006-2007: Consultant, high school physics video on dark matter, for the Perimeter Institute's outreach program

2006: 'Watching the very End of the Big Bang', Article for the Canadian high school physics magazine Phys13

### STUDENT SUPERVISION

Previously supervised or co-supervised 8 undergraduate students (producing two papers submitted to referred journals)

Previously supervised or co-supervised 2 Master's students and 1 Ph.D. student (producing 5 papers, including one with more than 80 citations).

Currently supervising 1 graduate student and 1 undergraduate research student.

Thesis committee member for 3 Master's students and 3 Ph.D. students

External examiner for 3 Ph.D. theses

## PUBLICATIONS AND PRESENTATIONS

### RECENT SUBMISSIONS TO REFEREED JOURNALS (1)

‘A Weak Lensing Study of X-Ray Groups in the COSMOS Survey: Form and Evolution of the Mass-Luminosity Relation’, A. Leauthaud, A. Finoguenov, J.-P. Kneib, D. E. Johnston, R. Massey, J. Rhodes, **J. E. Taylor**, P. Capak, O. Ilbert, K. Bundy, N. Cappelluti, R. S. Ellis, M. Elvis, C. Heymans, A. M. Koekemoer, O. Le Fevre, S. Lilly, Y. Mellier, A. Refregier, M. Salvato, N. Scoville, G. Smoot, M. Tanaka, L. Van Waerbeke, M Wolk, submitted to ApJ

### PUBLICATIONS IN REFEREED JOURNALS (33)

33. ‘The Chandra COSMOS Survey, I: Overview and Point Source Catalog’, Elvis et al. 2009, ApJ Sup. 184, 158

32. ‘Subaru Weak Lensing survey – II: Multi-object Spectroscopy and Cluster Masses’, Hamana, T., Miyazaki, S., Kashikawa, N., Ellis, R., Massey R. J., , Refregier, A., **Taylor, J.** 2009, PASJ 61, 833

31. ‘On the Contribution of Large-Scale Structure to Strong Gravitational Lensing’, C. Faure, J.-P. Kneib, S. Hilbert, R. Massey, G. Covone, A. Finoguenov, A. Leauthaud, **J. E. Taylor**, S. Pires, N. Scoville, A. M. Koekemoer 2009, ApJ 695, 1233

30. ‘On the Origin of the 511 keV Emission in the Galactic Centre’, Bandyopadhyay, R. M., Silk, J., **Taylor, J. E.** & Maccarone, T.J. 2009, MNRAS 392, 1115

29. ‘Connecting Substructure in Galaxy Cluster Cores with Cluster Assembly Histories’, G.P. Smith & **J. E. Taylor** 2008, ApJ 682, L73

28. ‘The first strong galaxy-galaxy lensing candidates in the COSMOS field’, C. Faure, J.-P. Kneib, L. Tasca, A. Leauthaud, G. Covone, S. De La Torre, J. Walcher, P. Capak, R. Ellis, C. Heymans, A. Koekemoer, O. Le Fevre, Y. Mellier, A. Refregier, J. Rhodes, N. Scoville, **J. E. Taylor**, L. Van Waerbeke 2008, ApJS 176, 19

27. ‘The Orbital Distribution of Satellite Galaxies’, Herbert-Fort, S., Zaritsky, D., Kim, Y. J., Bailin, J., **Taylor, J.** 2008, MNRAS 384, 803

26. ‘A Subaru Weak-Lensing Survey. I. Cluster Candidates and Spectroscopic Verification’, Miyazaki, S., Hamana, T., Ellis, R., Kashikawa, N., Massey R. J., **Taylor, J.**, Refregier, A. 2007, ApJ 669, 714

25. Can Astrophysical Gamma-Ray Sources Mimic Dark Matter Annihilation in Galactic Satellites?, Baltz, E. A., **Taylor, J. E.**, Wai, L. L. 2007, ApJ 659, 125

24. ‘Dark matter maps reveal cosmic scaffolding’, R. Massey, J. Rhodes, R. Ellis, N. Scoville, A. Leauthaud, A. Finoguenov, P. Capak, D. Bacon, H. Aussel, J.-P. Kneib, A. Koekemoer, H. J. McCracken, B. Mobasher, S. Pires, A. Refregier, S. Sazaki, J.-L. Starck, Y. Tanuguchi, A. Taylor, **J. E. Taylor**, Nature 445, 283

23. ‘The First Release COSMOS Optical and Near-IR Data and Catalog’, P. Capak, H. Aussel, M. Ajiki, H. J. McCracken, B. Mobasher, N. Scoville, P. Shopbell, Y. Taniguchi, D. Thompson, S. Tribiano, S. Sasaki, A. W. Blain, M. Brusa, C. Carilli, C. M. Carollo, A. Comastri, C. M. Carollo, J. Colbert, R. S. Ellis, M. Elvis, M. Giavalisco, W. Green, L. Guzzo, G. Hasinger, C. Impey, O. Ilbert, K. Jahnke, J. Kartaltepe, J.-P. Kneib, J. Koda, A. Koekemoer, Y. Komiyama, O. Lefevre, A. Leauthaud, S. Lilly, R. Massey, T. Murayama, S. Miyazaki, T. Nagao, J. A. Peacock, A. Pickles, C. Porciani, A. Renzini, J. Rhodes, M. Rich, M. Salvato, D. B. Sanders, C. Scarlata, D. Schiminovich, E. Schinnerer, M. Scodeggio, K. Sheth, Y. Shioya, L. A. M. Tasca, **J. E. Taylor**, L. Yan, G. Zamorani, *ApJS* 172, 99
22. ‘Weak Gravitational Lensing with COSMOS: Building a sample of half a million galaxies with accurate shapes and redshifts’, A. Leauthaud, R. Massey, J.-P. Kneib, J. Rhodes, P. Capak, C. Heymans, R. S. Ellis, D. E. Johnston, A. Koekemoer, O. Le Fevre, Y. Mellier, A. Refregier, A. Robin, N. Scoville, L. Tasca, **J. E. Taylor** & L. Van Waerbeke, *ApJS* 172, 219
21. ‘COSMOS: 3D weak lensing and the growth of structure’, R. Massey, J. Rhodes, A. Leauthaud, P. Capak, R. Ellis, A. Koekemoer, A. Refregier, N. Scoville, **J. E. Taylor**, J. Albert, J. Berge, C. Heymans, J.-P. Kneib, Y. Mellier, B. Mobasher, P. Shopbell, L. Tasca & L. Van Waerbeke, *ApJS* 172, 239
20. ‘The Stability of the Point Spread Function of the Advanced Camera for Surveys on the Hubble Space Telescope and Implications for Weak Gravitational Lensing’, J. Rhodes, R.J.Massey, J. Albert, N. Collins, R. S. Ellis, C. Heymans, J.P.Gardner, J.-P. Kneib, A. Koekemoer, A. Leauthaud, Y. Mellier, A. Refregier, **J. E. Taylor**, L. Van Waerbeke, submitted to *ApJS* 172, 203
19. ‘Large Structures and Galaxy Evolution in COSMOS at  $z < 1.1$ ’, N. Scoville, H. Aussel, A. Benson, A. Blain, D. Calzetti, P. Capak, R. S. Ellis, A. El-Zant, A. Finoguenov, M. Giavalisco, L. Guzzo, G. Hasinger, J. Koda, O. Lefevre, R. Massey, H. J. McCracken, B. Mobasher, A. Renzini, J. Rhodes, M. Salvato, D. B. Sanders, S. S. Sasaki, E. Schinnerer, K. Sheth, P. L. Shopbell, Y. Taniguchi, **J. E. Taylor**, D. J. Thompson, *ApJS* 172, 150
18. ‘The Cosmic Evolution Survey (COSMOS): a large-scale structure at  $z = 0.73$  and the relation of galaxy morphologies to local environment’, L. Guzzo, P. Cassata, A. Finoguenov, R. Massey, N. Z. Scoville, P. Capak, R. S. Ellis, B. Mobasher, Y. Taniguchi, D. Thompson, M. Aijiki, H. Aussel, H. Bohringer, M. Brusa, D. Calzetti, A. Comastri, A. Franceschini, G. Hasinger, A. M. Koekemoer, J.-P. Kneib, A. Leauthaud, H. J. McCracken, T. Murayama, T. Nagao, J. Rhodes, D. B. Sanders, S. Sasaki, Y. Shioya, L. Tasca, **J. E. Taylor**, *ApJS* 172, 254
17. ‘The XMM-Newton Wide-Field Survey in the COSMOS Field: VI. Statistical Properties of Clusters of Galaxies’, A. Finoguenov, G. Guzzo, G. Hasinger, N. Z. Scoville, H. Aussel, H. Bohringer, M. Brusa, P. Capak, N. Cappelluti, A. Comastri, R. E. Griffiths, C. Impey, A. M. Koekemoer, J.-P. Kneib, A. Leauthaud, O. Le Fevre, S. Lilly, V. Mainieri, R. Sakelliou, E. Schinnerer, J. D. Silverman, V. Smolcic, Y. Taniguchi, L. Tasca, **J. E. Taylor**, J. Trump, G. Zamorani, *ApJS* 172, 182
16. ‘Tidal Destruction of The First Dark Microhalos’, Zhao, HongSheng, Hooper, Dan, Angus, Garry W., **Taylor, James E.**, Silk, Joseph, *ApJ* 654, 697

15. ‘The Mass Assembly History of Field Galaxies: Detection of an Evolving Mass Limit for Star Forming Galaxies’, Bundy, Kevin, Ellis, Richard S., Conselice, Christopher J., **Taylor, James E.**, Cooper, Michael C., Willmer, Christopher N. A., Weiner, Benjamin J., Coil, Alison L., Noeske, Kai G., Eisenhardt, Peter R. M., ApJ 651, 120
14. ‘Astrometric Perturbations in Substructure Lensing’, Chen, Jacqueline, Rozo, Eduardo, Dalal, Neal, **Taylor, James E.**, ApJ 659, 52
13. ‘The Evolution of Substructure in Galaxy, Group and Cluster Haloes III: Comparison with Simulations’, **Taylor, J. E.** & Babul, A., MNRAS 364, 535
12. ‘The Evolution of Substructure in Galaxy, Group and Cluster Haloes II: Global Properties’, **Taylor, J. E.** & Babul, A., MNRAS 364, 515
11. ‘Massive Black Hole Remnants of the First Stars III: Observational Signatures from the Past’, Islam, R. R., **Taylor, J. E.** & Silk, J., MNRAS 354, 629
10. ‘Massive Black Hole Remnants of the First Stars II: Optical and X-ray Signatures in Present-day Galactic Haloes’, Islam, R. R., **Taylor, J. E.** & Silk, J., MNRAS 354, 443
9. ‘Massive Black Hole Remnants of the First Stars I: Abundance in Present-day Galactic Haloes’, Islam, R. R., **Taylor, J. E.** & Silk, J., MNRAS 354, 427
8. ‘Can Supersymmetry Naturally Explain the Positron Excess?’, Hooper, D., **Taylor, J. E.** & Silk, J., Phys. Rev. D 69, 103509
7. ‘The Evolution of Substructure in Galaxy, Group and Cluster Haloes I: Basic Dynamics’, **Taylor, J. E.** & Babul, A., MNRAS 348, 811
6. ‘Observing the Sunyaev-Zel’dovich Effect Closer to Home’, **Taylor, J. E.**, Moodley, K. & Diego, J. M., MNRAS 345, 1127
5. ‘Massive Black Hole Remnants of the First Stars in Galactic Haloes’, Islam, R. R., **Taylor, J. E.** & Silk, J. 2003, MNRAS 340, 647
4. ‘The Structural Evolution of Substructure’, Hayashi, E., Navarro, J. F., **Taylor, J. E.**, Stadel, J. & Quinn, T. 2003, ApJ 584, 541
3. ‘The Clumpiness of Cold Dark Matter: Implications for the Annihilation Signal’, **Taylor, J. E.** & Silk, J. 2003, MNRAS 339, 505
2. ‘The Phase-space Density Profiles of Cold Dark Matter Halos’, **Taylor, J. E.** & Navarro, J. F. 2001, ApJ 563, 483
1. ‘Dynamics of Sinking Satellites Around Disk Galaxies: A Poor Man’s Alternative to High-Resolution Simulations’, **Taylor, J. E.** & Babul, A. 2001, ApJ 559, 716

PUBLISHED CONFERENCE PROCEEDINGS (16)

‘Understanding Small-Scale Structure Formation: Are We There Yet?’, **Taylor, J.E.**, in Proceedings of ‘Identification of Dark Matter 2008’, August 18-22, 2008, Stockholm, Sweden, p.56 (POS 2008)

‘Will GLAST Identify Dark Matter?’, **Taylor**, J.E., Baltz, E.A., Wai, L.L. in The First GLAST Symposium, AIP Conference Proceedings v. 921, 178 (2007)

‘Modelling and Correcting the Time-Dependent ACS PSF’, Rhodes, Jason, Massey, Richard, Albert, Justin, **Taylor, James E.**, Koekemoer, Anton, Leauthaud, Alexie, to appear in the proceedings of the 2005 HST Calibration Workshop, A. Koekemoer, P. Goudfrooij, and L. Dressel, eds. (NASA/GSFC 2006)

‘The Dark Matter Morphology, Luminosity Gap Statistic and Mass Assembly History of Massive Galaxy Clusters’, Smith, G. P., Khosroshahi, H. G., Ponman, T. J., **Taylor, J. E.**, in Galaxy Evolution Across the Hubble Time, proceedings of IAU Symposium no. 235, 2006, S235, 368

‘Observational Constraints on the Angular Momentum of Spiral Galaxy Dark Matter Halos’, Herbert-Fort, S., Zaritsky, D., Kim, Y. J., Bailin, J., **Taylor, J.** in Galaxy Evolution Across the Hubble Time, proceedings of IAU Symposium no. 235, 2006, S235, 185

‘Halo Mergers in Phase-space’, **Taylor, J. E.**, in Mass Profiles and Shapes of Cosmological Structures G.A. Mamon, F. Combes, C. Deffayet and B. Fort eds., EAS Publications Series, 20 , 2006, pp.47-50

‘Clues to Dwarf galaxy Formation from Clustering and Kinematics’, **Taylor, James E.**, Silk, Joe, Babul, Arif, in Near-field cosmology with dwarf elliptical galaxies, proceedings of IAU Colloquium 198, Jerjen, H., Binggeli, B. eds., Cambridge: Cambridge University Press, 2005., pp.185-188

‘The Mass-Dependent Evolution of Field Galaxies’, Bundy, K., Ellis, R. S., Conselice, C. J., Cooper, M., Weiner, B., **Taylor, J.**, Willmer, C., DEEP2 Team, in Bulletin of the American Astronomical Society, Vol. 37, p.1235

‘Predicting Substructure in CDM Haloes’, **Taylor, J. E.** & Babul, A., in the proceedings of IAU Symposium 225: ‘Impact of Gravitational Lensing on Cosmology’, Y. Mellier and G. Meylan eds., Cambridge:CUP, 2005, pp.225-230

‘Do the Unidentified EGRET Sources Trace Annihilating Dark Matter in the Local Group?’, Flix, J., **Taylor, J. E.**, Martínez, M., Prada, F., Silk, J., & Cortina, J. 2005, in ‘The Multiwavelength Approach to Unidentified Gamma-ray Sources’, ApSS 297, 299

‘Substructure and Tidal Debris in Local Galaxies: Models and Observations’, **Taylor, J. E.** 2005, in ‘The Three Dimensional Universe with Gaia’ (ESA Special Publications Series SP-576) p. 715

‘Small-scale Substructure in Dark Matter Haloes: Where does Galaxy Formation Come to an End?’, **Taylor, J. E.**, Silk, J. & Babul, A., in the proceedings of IAU Symposium 220: ‘Dark Matter in Galaxies’ (ASP Conference Series), S. Ryder, D.J. Pisano, M. Walker, and K. Freeman eds., San Francisco: ASP, 2004, p.91

‘The Satellite-substructure Connection’, **Taylor, J. E.**, Silk, J. & Babul, A., in ‘Satellites and Tidal Streams’ (ASP Conference Series CS-327), F. Prada & D. Martinez-Delgado eds., San Francisco:ASP, 2004, p. 205



‘A Little Substructure, to Brighten Things Up a Bit’, **Taylor, J. E.** & Silk, J. in the ‘The Cosmological Model’ (proceedings of the XXXVII Rencontres de Moriond), Y. Giraud-Héraud, C. Magneville, J. Trân Thanh Vân eds., Vietnam: Thê Gioi Publishers, 2003, p.183

‘Modelling the Formation of Individual Galaxies: A Morphology Problem for CDM?’, **Taylor, J. E.** & Babul, A., in ‘The Evolution of Galaxies III: From Simple Approaches to Self-Consistent Models’, Astrophysics and Space Science, 284, p.405 (2003)

‘A Semi-analytic Model of Halo Dynamics’, **Taylor, J. E.** & Babul, A., in ‘A New Era In Cosmology’ (ASP Conference Series), Vol. 283, T. Shanks and N. Metcalfe eds., San Francisco: Astronomical Society of the Pacific, 2002, p.334

### WHITE PAPERS & REPORTS (3)

W. M. Keck Institute for Space Studies Dark Matter Workshop Final Report, in preparation, September 2009

Report of the Canadian Space Agency Discipline Working Group in High Energy Astrophysics, March 2009

‘Strong gravitational lensing probes of the particle nature of dark matter’  
White Paper submitted to the Astro 2010 Decadal Cosmology and Fundamental Physics Science Frontier Panel, published on-line as Moustakas et al. February 2009 (arXiv preprint 0902.3219)

### INVITED CONFERENCE TALKS & REVIEWS (6)

‘Dark Matter and Structure Formation’  
(Review and Moderated Discussion)  
Keck Institute for Space Science Dark Matter Workshop, California Institute of Technology, Pasadena, USA 2009

‘Understanding Small-Scale Structure Formation: Are We There Yet?’  
(Invited Review)  
Identification of Dark Matter 2008, Alba Nova, Stockholm, Sweden 2008

‘Structure Formation in Dark and Luminous Matter:  
What Lies Beyond the Frontier?’  
(Invited Talk)  
Frontiers of Modern Cosmology, Perimeter Institute, Waterloo, Canada 2007

‘CDM Structure and Substructure Formation on Subgalactic Scales’  
(Invited Talk)  
Institute for Nuclear Theory, University of Washington, Seattle, USA 2006

‘Production and Destruction of Substructure: analytic and semi-analytic models’  
(Invited Review)  
Kavli Institute for Astrophysics and Space Research, Cambridge, USA 2005

‘Small-scale Substructure in Dark Matter Haloes:  
Where does Galaxy Formation Come to an End?’  
(Invited Talk)  
IAU Symposium 220 : Dark Matter in Galaxies, Sydney, Australia 2003

#### INVITED COLLOQUIA & SEMINARS (15)

‘Small-scale Structure in the Universe’  
(Invited Colloquium)  
St Marys University, Halifax, Canada 2008

‘The Cosmological Formation of Little Wee Things’  
(Invited Colloquium)  
McMaster University, Hamilton, Canada 2007

‘Dark Matter in the Milky Way’,  
(Invited Seminar)  
Queen’s University, Kingston, Canada 2007

‘Local Dwarf Galaxies: Footsoldiers of a Dark Empire?’,  
(Invited Seminar)  
Herzberg Institute of Astrophysics, Victoria, Canada 2007

‘Prospects for the Discovery of Local Dark Matter’,  
(Invited Seminar)  
Canadian Institute for Theoretical Astrophysics, Toronto, Canada 2007

‘Local Dwarf Galaxies: Footsoldiers of a Dark Empire?’,  
(Invited Seminar)  
Department of Astronomy, University Toronto, Toronto, Canada 2007

‘The Dark Side of Our Own Backyard’,  
(Invited Colloquium)  
University of Guelph, Guelph, Canada 2006

‘The Microscopic Structure of Dark Matter: From Inflation to the Oort Cloud’,  
(Invited Seminar)  
University of Florida, Gainesville, USA 2006

‘Precision Cosmology in the Nonlinear Regime’  
(Invited Seminar)  
Kavli Institute for Cosmological Physics, Chicago, USA 2005

‘The Private Lives of Dark Matter Halos’  
(Invited Seminar)  
University of Waterloo, Waterloo, Canada 2005

‘The Private Lives of Dark Matter Halos’  
(Invited Seminar)  
Kavli Institute for Particle Astrophysics and Cosmology, Stanford University, Menlo  
Park, USA 2005

‘The Private Lives of Dark Matter Halos’  
(Invited Seminar)  
Theoretical Astrophysics Center, UC Berkeley, Berkeley, USA 2005

‘The Dark Matter Environment of Galaxies’  
(Invited Colloquium)  
Jodrell Bank Observatory, Jodrell Bank, UK 2004

‘The Devil in the Details: The Fine Structure of Dark Matter Haloes’  
(Invited Seminar)  
Max Planck Institute for Astrophysics, Garching, Germany 2003

‘Location, Location, Location:  
The Environmental Dependence of Galaxy Formation’  
(Invited Seminar)  
University of Cardiff, Cardiff, UK 2003

#### CONFERENCE PRESENTATIONS (43)

‘COSMOS Weak Lensing: What’s up and what is next’  
(Oral presentation)  
COSMOS Collaboration Meeting, Ehime University, Matsuyama, Japan 2009

‘Modelling Structure on the Smallest Scale’  
(Blackboard Talk)  
Building the Milky Way (long-term program), Kavli Institute for Theoretical Physics,  
Santa Barbara, USA 2008

‘Satellites in the Halo of the Milky Way’  
(Blackboard Talk)  
Building the Milky Way (long-term program), Kavli Institute for Theoretical Physics,  
Santa Barbara, USA 2008

‘Constraints on Primordial Non-Gaussianity from Small-Scale CDM Structure’,  
(Oral Presentation)  
Small Scale Structure of Dark Matter Workshop, Perimeter Institute Waterloo,  
Canada 2008

‘The Dynamical Age of Clusters’,  
(Oral Presentation)  
Second LoCuSS Collaboration Meeting, Kavli Institute for Cosmological Physics,  
Chicago, USA 2008

‘Lensing in the COSMOS Survey: Peaks, Photo-zs and the  $D_A(z)$  Relation’,  
(Oral Presentation)  
UBC Lensing-Photo-z Workshop, Vancouver, Canada 2007

‘Dark Matter on the Smallest Scales’,  
(Oral Presentation)  
TeV Particle Astrophysics 2007, Istituto Veneto di Scienze, Lettere e d’Arti, Venice,  
Italy 2007

‘Peaks and  $D_A(z)$  from Weak Lensing in COSMOS’  
(Oral Presentation)  
New York COSMOS Meeting, Hayden Planetarium/American Museum of Natural History, New York, USA 2007

‘Measuring the Growth Factor via Gravitational Lensing’  
(Oral Presentation)  
Origins of Dark Energy, Origins Institute, Hamilton Canada 2007

‘Inferring the Ages of the Smallest Early-type Galaxies from their Location’,  
(Poster Presentation)  
A New Zeal for Old Galaxies, Rotorua, New Zealand 2007

‘Local Halo Substructure as a Target for Dark Matter Detection’  
(Oral Presentation)  
Astrophysical Probes of the Nature of Dark Matter, The Center for Cosmology, UC Irvine, Irvine USA 2007

‘When Will We Identify Dark Matter?’  
(Oral Presentation)  
SkiLS Meeting, Mt. Washington, Canada 2007

‘Will GLAST Identify Dark Matter?’  
(Oral Presentation)  
First GLAST Symposium, Stanford University, USA 2007

‘Galaxy Clusters as Dark Matter Haloes’  
(Oral Presentation)  
3<sup>rd</sup> Southern Ontario Cluster Meeting, Waterloo, Canada 2006

‘Modelling the Mass Accretion History of Galaxy Clusters: Standard Clocks, Standard Thermometers, Standard Test-tubes?’  
(Oral Presentation)  
First LoCuSS Team Meeting, University of Birmingham, Birmingham, UK 2006

‘The Microscopic Structure of Dark Matter: From Inflation to the Oort Cloud’  
(Oral Presentation)  
Kingston in Kingston 2006, Stars to Halos: The Scale Challenge, Queen’s University, Kingston, Canada 2006

‘Peaks in the COSMOS Weak Lensing Maps’  
(Oral Presentation)  
COSMOS Team Meeting, Asiago Observatory, Asiago, Italy 2006

‘Relating Mass and Light in the COSMOS Field’  
(Poster Presentation)  
Istituto Veneto di Scienze, Lettere ed Arti, Venice, Italy 2006

‘Making Better Merger Trees’  
(Oral Presentation)  
Theoretical Astrophysics in Southern California 2005, Caltech, Pasadena, USA 2005

‘Halo Mergers in Phase-space’  
(Oral Presentation)

Mass Profiles & Shapes of Cosmological Structures, Institut d'Astrophysique de Paris, Paris, France 2005

'Tracing Dark and Luminous Matter in COSMOS: Key Astrophysics and Practical Restrictions'

(Oral Presentation)

COSMOS Team Meeting, University of Kyoto, Kyoto, Japan 2005

'Clues to Dwarf Galaxy Formation from Clustering and Kinematics'

(Oral Presentation)

IAU Colloquium 198: Near-field Cosmology with Dwarf Elliptical Galaxies, Les Diablerets, Switzerland 2005

'Substructure and Tidal Debris in Local Galaxies: Models and Observations'

(Poster Presentation)

The Three Dimensional Universe with Gaia, Meudon, France 2004

'Predicting Substructure in CDM Haloes'

(Oral Presentation)

IAU Symposium 220 : Impact of Gravitational Lensing on Cosmology, Lausanne, Switzerland, 2004

'Seeding Supermassive Black Holes'

(Oral Presentation)

Aspen Workshop: The Formation of Supermassive Black Holes, Aspen, USA 2004

'Galaxy Formation on the Smallest Scales'

(Oral Presentation)

UK National Astronomy Meeting 2004, Milton Keynes, UK 2004

'Is Overmerging Over Yet? Modelling Substructure in Galaxy Haloes'

(Oral Presentation)

BIRS Galaxy Formation Workshop, Banff, Canada 2003

'Dwarf Galaxy Properties as a Constraint on Reionization'

(Oral Presentation)

BIRS Galaxy Formation Workshop, Banff, Canada 2003

'Ionization before Reionization?'

(Poster Presentation)

From First Light to the Milky Way, Zurich, Switzerland 2003

'Observing the SZ Effect Closer to Home'

(Oral Presentation)

The Local Group as Cosmological Training Sample, 2<sup>nd</sup> Potsdam Thinkshop, Potsdam, Germany 2003

'The Satellite-substructure Connection'

(Oral Presentation)

Satellites and Tidal Streams, La Palma, Spain 2003

'Searching for Missing Baryons with the SZ Effect'

(Oral Presentation)

UK National Astronomy Meeting 2003, Dublin, Ireland 2003

‘A Bright Future for Dark Matter’  
(Oral Presentation)

UK Cosmology Meeting, Oxford, UK 2003

‘Looking for the SZ Effect Closer to Home’  
(Oral Presentation)

1<sup>st</sup> Oxford-Princeton Workshop on Cosmology, Princeton, USA 2003

‘A Bright Future for Dark Matter’  
(Oral Presentation)

CO2 (Cosmology at Oxford and Orsay) Workshop, Orsay, France 2003

‘Halo Substructure: a Crisis in CDM?’  
(Oral Presentation)

OxCam5 Oxford-Cambridge Meeting, Cambridge, UK 2002

‘A Little Substructure, to Brighten Things Up a Bit’  
(Oral Presentation)

The Cosmological Model (Les Rencontres de Moriond), Les Arcs, France 2002

‘Statistical Problems in Galaxy Formation’  
(Oral Presentation)

Hydrodynamical Simulations of Galaxy Assembly:  
Dynamics & Star Formation, Madrid, Spain 2001

‘A Semi-analytic Model of Halo Dynamics’  
(Poster Presentation)

A New Era In Cosmology, Durham, U.K. 2001

‘The Formation of Galactic Halos and the Survival of Galactic Disks’  
(Oral Presentation)

Victoria Computational Cosmology Conference, Victoria, Canada 2000

‘A Poor Man’s Alternative to Numerical Simulations’  
(Oral Presentation)

Annual Meeting of the Canadian Astronomical Society, Vancouver,  
Canada 2000

‘The Formation and Survival of Galactic Disks’  
(Oral Presentation)

Northwest Cosmology Meeting, San Juan Island, USA 1998

‘The Formation and Survival of Galactic Disks’  
(Poster Presentation)

13th Kingston Meeting on Theoretical Astrophysics, Hamilton, Canada 1998