Summary: 22 refereed publications since 2006, 736 citations, h-index: 11
(Source: NASA Astrophysical Data System, Oct 14; see www.physics.mcgill.ca/~patscott/publications)

Phys. Rev. Lett.: Physical Review Letters
Phys. Rev. D: Physical Review D (Particles, Fields, Gravitation and Cosmology)
JCAP: Journal of Cosmology and Astroparticle Physics
JHEP: Journal of High Energy Physics
ARA&A: Annual Review of Astronomy and Astrophysics
ApJ: The Astrophysical Journal (including Letters)
A&A: Astronomy and Astrophysics
MNRAS: Monthly Notices of the Royal Astronomical Society
PoS: Proceedings of Science
Ap&SS: Astrophysics and Space Science
Can. J. Phys.: Canadian Journal of Physics

Part 1: List of Contributions

Articles published or accepted in refereed journals

[1] **P. Scott**, A. Venkatesan, E. Roebber, P. Gondolo, E. Pierpaoli, and G. Holder, *Impacts of Dark Stars on Reionization and Signatures in the Cosmic Microwave Background*, *ApJ* (2011) in press (accepted Aug 22), [arXiv:1107.1714].

[2] J. Ripken, J. Conrad, and **P. Scott**, *Implications for constrained supersymmetry of combined H.E.S.S. observations of dwarf galaxies, the Galactic halo and the Galactic centre*, *JCAP* (2011) in press (accepted Oct 17), [arXiv:1012.3939].

[3] Y. Akrami, C. Savage, **P. Scott**, J. Conrad, and J. Edsjö, *Statistical coverage for supersymmetric parameter estimation: a case study with direct detection of dark matter*, *JCAP* **7** (2011) 2, [arXiv:1011.4297].

[4] Y. Akrami, C. Savage, **P. Scott**, J. Conrad, and J. Edsjö, *How well will ton-scale dark matter direct detection experiments constrain minimal supersymmetry?*, *JCAP* **4** (2011) 12, [arXiv:1011.4318].

[5] E. Zackrisson, **P. Scott**, C.-E. Rydberg, F. Iocco, S. Sivertsson, G. Östlin, G. Mellema, I. T. Iliev, and P. R. Shapiro, *Observational constraints on supermassive dark stars*, *MNRAS* **407** (2010) L74–L78, [arXiv:1006.0481].

[6] E. Zackrisson, **P. Scott**, C.-E. Rydberg, F. Iocco, B. Edvardsson, G. Östlin, S. Sivertsson, A. Zitrin, T. Broadhurst, and P. Gondolo, *Finding High-redshift Dark Stars with the James Webb Space Telescope*, *ApJ* **717** (2010) 257–267, [arXiv:1002.3368].

[7] Y. Akrami, **P. Scott**, J. Edsjö, J. Conrad, and L. Bergström, *A profile likelihood analysis of the Constrained MSSM with genetic algorithms*, *JHEP* **4** (2010) 57, [arXiv:0910.3950].

[8] **P. Scott**, J. Conrad, J. Edsjö, L. Bergström, C. Farnier, and Y. Akrami, *Direct constraints on minimal supersymmetry from Fermi-LAT observations of the dwarf galaxy Segue 1*, *JCAP* **1** (2010) 31, [arXiv:0909.3300].

[9] M. Asplund, N. Grevesse, A. J. Sauval, and **P. Scott**, *The chemical composition of the Sun*, *ARA&A* **47** (2009) 481–522, [arXiv:0909.0948].

[10] **P. Scott** and S. Sivertsson, *Gamma rays from ultracompact primordial dark matter minihalos*, *Phys. Rev. Lett.* **103** (2009) 211301, [arXiv:0908.4082].

[11] **P. Scott**, M. Asplund, N. Grevesse, and A. J. Sauval, *On the Solar Nickel and Oxygen Abundances*, *ApJ* **691** (2009) L119–L122, [arXiv:0811.0815].

[12] **P. Scott**, M. Fairbairn, and J. Edsjö, *Dark stars at the Galactic Centre - the main sequence*, *MNRAS* **394** (2009) 82–104, [arXiv:0809.1871].

[13] M. Fairbairn, **P. Scott**, and J. Edsjö, *The zero age main sequence of WIMP burners*, *Phys. Rev. D* **77** (2008) 047301, [arXiv:0710.3396].

[14] **P. Scott**, M. Asplund, N. Grevesse, and A. J. Sauval, *Line formation in solar granulation. VII. CO lines and the solar C and O isotopic abundances*, *A&A* **456** (2006) 675–688, [arXiv:astro-ph/0605116].

Articles submitted to refereed journals

[15] T. Bringmann, **P. Scott**, and Y. Akrami, *Improved constraints on the primordial power spectrum at small scales from ultracompact minihalos*, *Phys. Rev. D* (2011), 21 pages, submitted Oct 28, [arXiv:1110.2484].

Other refereed contributions (proceedings)

[16] **P. Scott**, *Dark stars: structure, evolution and impacts upon the high-redshift Universe*, in *Cosmic Radiation Fields: Sources in the early Universe* (M. Raue, T. Kneiske, D. Horns, D. Elsaesser, & P. Hauschildt, ed.) (2011) *PoS*(**CRF 2010**)021, [arXiv:1101.1029].

[17] C. E. Rydberg, E. Zackrisson, and **P. Scott**, *Can the James Webb Space Telescope detect isolated population III stars?*, in *Cosmic Radiation Fields: Sources in the early Universe* (M. Raue, T. Kneiske, D. Horns, D. Elsaesser, & P. Hauschildt, ed.) (2011) *PoS*(**CRF 2010**)026, [arXiv:1103.1377].

[18] N. Grevesse, M. Asplund, A. J. Sauval, and **P. Scott**, *The New Solar Composition and the Solar Metallicity*, in *The Sun, the Solar Wind, and the Heliosphere* (M. P. Miralles and J. Sánchez Almeida, eds.), *IAGA Special Sopron Book Series* **4** (2011) 51–60.

[19] N. Grevesse, M. Asplund, A. Sauval, and **P. Scott**, *The chemical composition of the sun*, in *10th International Colloquium on Atomic Spectra and Oscillator Strengths for Astrophysical and Laboratory Plasmas*, *Can. J. Phys.* **89** (2011) 327–331.

[20] N. Grevesse, M. Asplund, A. J. Sauval, and **P. Scott**, *The chemical composition of the Sun*, in *Synergies between solar and stellar modelling*, *Ap&SS* **328** (2010) 179–183.

[21] **P. Scott**, J. Edsjö, and M. Fairbairn, *The DarkStars code: a publicly available dark stellar evolution package*, in *Dark Matter in Astroparticle and Particle Physics: Dark 2009* (H. V. Klapdor-Kleingrothaus & I. V. Krivosheina, ed.), World Scientific, Singapore (2010) 320–327, [arXiv:0904.2395].

[22] **P. Scott**, M. Fairbairn, and J. Edsjö, *Impacts of WIMP dark matter upon stellar evolution: main-sequence stars*, in *Identification of dark matter 2008* (2008) *PoS*(**idm2008**)073, [arXiv:0810.5560].

[23] **P. Scott**, J. Edsjö, and M. Fairbairn, *Low mass stellar evolution with WIMP capture and annihilation*, in *Dark Matter in Astroparticle and Particle Physics: Dark 2007* (H. K. Klapdor-Kleingrothaus and G. F. Lewis, eds.), World Scientific, Singapore (2008) 387–392, [arXiv:0711.0991].

Published Monographs

[24] **P. Scott**, *Searches for Particle Dark Matter: Dark stars, dark galaxies, dark halos and global supersymmetric fits*. Universitetsservice US-AB, Stockholm, ISBN 978-91-7447-031-4, 2010. PhD Thesis in Theoretical Physics, Stockholms Universitet, [arXiv:1110.2757]

Invited Presentations

[25] *Theoretical Astrophysics Seminar Series*, Fermilab, Batavia, USA, Sept., 2011, institutional.

[26] *Topics in Astroparticle and Underground Physics (TAUP) 2011*, Munich, Germany, Sept., 2011, international.

[27] *TeV Particle Astrophysics VII*, Stockholm, Sweden, Aug., 2011, international.

[28] *Weinberg Theory Group Seminar Series*, University of Texas, Austin, USA, Apr., 2011, institutional.

[29] *Cosmic Radiation Fields 2010: Sources in the Early Universe*, DESY Hamburg, Germany, Nov., 2010, international (plenary).

[30] *Nordic Astrophysics 2010*, Visby, Sweden, May, 2010, international.

[31] *Astroparticle Seminar Series*, Univeristy of Hamburg, Germany, May, 2010, institutional.

[32] *Astronomy & Theoretical Physics Colloquium*, Lund, Sweden, Mar., 2010, institutional.

[33] *Astronomy Colloquium*, Imperial College London, UK, Jan., 2010, institutional.

[34] *Searching for Dark Matter – A Multi-Disciplinary Approach*, University of Leicester, UK, Jan., 2010, international (plenary).

[35] *Mini Symposium on Dark Matter*, University of Hamburg, Germany, Dec., 2009, institutional.

[36] *Dark Stars Workshop*, Michigan Centre for Theoretical Physics, Ann Arbor, USA, Nov., 2009, international.

[37] *Extreme Astrophysics for All II*, Lund, Sweden, Feb., 2009, national.

[38] *SEAS Colloquium*, Max Planck Institute for Astrophysics, Garching, Germany, Dec., 2008, institutional.

[39] *Bok Prize Lecture, Astronomical Society of Australia Annual Scientific Meeting*, University of Sydney, Australia, July, 2005, national (plenary).

+41 contributed presentations not shown (see www.physics.mcgill.ca/~patscott/talks)

Part 2: Research Contributions

[8] **Scott**, Conrad, Edsjö, Bergström, Farnier & Akrami, *Direct constraints on minimal supersymmetry from Fermi-LAT observations of the dwarf galaxy Segue 1*, *JCAP* **1** (2010) 31.

37 citations

In this paper, we investigated the implications for supersymmetry of searches for gamma-rays from dark matter (DM) annihilation in the ultra-faint dwarf galaxy Segue 1, using the *Fermi* Large Area Telescope (LAT). This paper was the first to include results from either direct or indirect searches for dark matter in a global SUSY fit. It was also the first published dark matter result from the *Fermi*-LAT collaboration itself.

The work generated substantial interest from both the DM indirect detection and SUSY global-fit communities. Whilst the constraints on the parameter space were not especially strong, the paper demonstrated how DM searches could be used in SUSY global fits, without compromising on any of the technical aspects of the astronomical gamma-ray analysis. The community recongized (as evidenced in e.g. the referee's comments) that such analyses are indeed the way of the future for DM indirect detection. The paper continues to be well read and referenced, generating 37 citations to date in the ∼2 years since it was posted to the arXiv.

[9] Asplund, Grevesse, Sauval & **Scott** (AGSS09), *The chemical composition of the Sun*, *ARA&A* **47** (2009) 481–522.

452 citations

This article updated and compiled the present state of knowledge on the abundances of the chemical elements in the Sun, from Hydrogen up to and including Uranium ($Z = 92$). The composition of the Sun is a fundamental reference quantity in astrophysics, against which all other astronomical objects are measured. The article has found wide-ranging use in all parts of astronomy and astrophysics, from Galactic chemical evolution, planet searches and solar system physics to cosmology, extragalactic astrophysics and astroparticle physics. In just two years, AGSS09 (as it is known in the community) has generated over 450 citations, becoming one of the most highly cited articles of 2009.

This paper, published as an invited review article in the prestigious journal *Annual Reviews of Astronomy & Astrophysics*, in fact consisted almost entirely of original work. For no other article in my career where I was not first author have I ever done nearly as much work as for AGSS09. We reanalyzed the abundances of every element with identifiable lines in the solar spectrum. I was personally responsible for atomic data, line selection and abundance calculation for all elements from Na ($Z = 11$) to Zn ($Z = 30$). This was the first time anyone had published a homogeneous and complete analysis of elemental abundances in the Sun, using the same model atmosphere, spectra, line- and data-selection policies and treatment of errors for every element. We employed a new 3D hydrodynamic model of the solar atmosphere (the first time many elements had had their solar spectra analyzed in 3D), extremely discerning selections of atomic data and line lists, and in many cases, corrections for departures from local thermodynamic equilibrium in the atomic level populations. In a sense, the article was a 'pre-review' of a series of 7 papers we are currently finalizing for publication in *Astronomy & Astrophysics*, where all of the details of the results quoted in AGSS09 will be presented.

[12] **Scott**, Fairbairn & Edsjö, *Dark stars at the Galactic Centre - the main sequence*, *MNRAS* **394** (2009) 82–104.

33 citations

'Dark stars', stars whose structure and evolution are dictated more by dark matter annihilation in their cores than nuclear burning, have been a hot topic of research in recent years. This paper dealt with prospects for finding dark stars close to the Galactic centre. The paper was significant because it gave the full technical details and results of the most interesting investigations we discussed in earlier papers [13, 23]. This work was the first treatment of the effects of dark matter on the evolution of main-sequence stars (of any metallicity), using a full stellar evolution simulation. It was one of the initial 5-6 papers that really launched the recent run of ∼50 publications on dark stars. It also lead directly to the public 'dark stellar evolution' code DarkStars [21]. Aside from being interesting for the results it presented (showing that low-mass stars on elliptical orbits near the Galactic centre might be expected to exist as dark stars), the paper remains the most comprehensive and detailed exposition of the physics involved in simulating the structure and evolution of dark stars. It has thus become something of a standard reference work in the field, and has generated 33 citations to date.