CURRICULUM VITAE

James Mullaney
Department of Physics and Astronomy
The University of Sheffield
U.K.

Phone: +44 114 22 23512
Email: j.mullaney@sheffield.ac.uk

RESEARCH ACHIEVEMENTS:

I have been actively researching the properties of AGNs in both the low and high redshift universe for eleven years, ten years postdoctoral. Since completion of my PhD my main research achievements have been as follows:

- Showing that the levels of far-infrared emission from AGN-hosting galaxies has decreased significantly over the last 10 billion years. Since far-infrared emission is largely produced by star-formation, this shows that early AGNs resided in galaxies that were forming stars much rapidly than today (see Mullaney et al. 2010, MNRAS, 401, 905 & Mullaney et al. 2012, MNRAS, 419, 95).
- Using Spitzer spectroscopy and IRAS photometry to empirically constrain the intrinsic mid to far-infrared spectral energy distributions (SEDs) of AGNs. Knowing the intrinsic AGN infrared SED has allowed us and other groups to precisely quantify the levels of AGN activity and star-formation taking place in galaxies across cosmic time (see Mullaney et al. 2011, MNRAS, 414, 1082).
- Exploiting the deepest data obtained by the Herschel Space Telescope to show that the mean-average star-forming properties of X-ray selected AGN are consistent with that of typical star-forming galaxies at similar redshifts. This provides strong evidence that the majority of AGNs do not reside in star-bursting galaxies and thus are unlikely to be triggered major mergers events (see Mullaney et al. 2012, MNRAS, 419, 95).
- Using stacking techniques on the deepest X-ray images yet obtained to show that, on average, black hole growth has closely tracked galaxy growth over the last 10 billion years, irrespective of galaxy mass. Since the vast majority of star-formation is not triggered by rare major mergers, we interpret our results as providing further evidence that a significant fraction of black hole growth is triggered instead by slow, secular processes such as disk instabilities (see Mullaney et al. 2012, ApJL, 753, 30).
- Analysing the spectra of ~25,000 AGN to determine the prevalence of AGN-driven outflows in the low redshift (i.e., $z<0.4$) Universe. This work demonstrated that fast (i.e., >500 km/s) outflows are present in around 10% of all AGN at these redshifts. In doing so, I also revealed a close link between outflow speed and the radio properties of the AGN, suggesting radio jets may play an important role in driving these outflows (see Mullaney et al. 2013, MNRAS, 433, 622).

EDUCATION:

- 2005 - 2008: **Postgraduate:** Durham University. Ph. D. in Astronomy. "The location and kinematics of the emission line regions in AGNs". Supervised by Prof. Martin Ward.
- 2004 - 2005: Period spent in industry.
- 2000 - 2004: **Undergraduate:** University of Nottingham. M.Sci. Physics with Astronomy. First Class Honours.

RESEARCH CAREER:

- 2013 - 2016: Vice Chancellor's Fellow. The University of Sheffield.
- 2012 - 2013: Leverhulme Early Career Research Fellow. Durham University. (3 yr funded position cut at 18 months to take up Vice Chancellor's fellowship).
- 2010 - 2012: Eurotalents Research Fellow, CEA-Saclay. Jointly funded by an FP7 European research grant and the French Government.
- 2008 - 2010: Research Fellow at Durham University, funded by a Leverhulme Trust Research Prize awarded to Dr. D. M. Alexander.

PUBLICATIONS

- First author on 9 refereed journal articles (attracting >585 citations as of October 2016).
- Author on 59 refereed journal articles overall (attracting >2890 citations as of October 2016).
- H-index: 31

AWARDS, FELLOWSHIPS AND GRANTS:

- November, 2014: Awarded £10,000 from The University of Sheffield to fund proof-of-concept research into applying astronomical image analysis techniques to biological imaging data. This grant was used, in part, to fund a summer research student throughout July and August, 2015.
- March, 2013: Awarded a Vice Chancellor's Fellowship.
- May, 2011: Awarded a Leverhulme Early Career Research Fellowship.
- December, 2009: Awarded a Eurotalents Research Fellowship, part funded by a European FP7 grant.
- March, 2002: Awarded a Universitas-21 grant to study at the University of Toronto, Canada, during my 3rd year of undergraduate studies.

INVITED CONFERENCE TALKS:

In addition to delivering talks at over twenty international conferences and seminars, I have also been invited to give talks at the following conferences:

- Chania, Crete, Invited Review Talk, Sep. 2015, *The demographics and environments of AGN*.
- Puerto Varas, Chile, Invited talk, March, 2015, *Unveiling the AGN – galaxy evolution connection.*
- Leiden, The Netherlands, Invited talk, July, 2013, *Co-evolution of BH accretion and SFR.*
- Sicily, Italy, Invited talk, June 2013, *Co-evolution of BH accretion and SFR.*
- Ringberg Castle, Germany, Invited talk, December, 2012, *Co-evolution of BH accretion and SFR.*

SELECTED POSITIONS OF RESPONSIBILITY:

- Postgraduate admissions tutor for the Astronomy Group, 2016 - onwards
- University of Sheffield's Liaison for the Square Kilometre Array, January 2015 - onwards
- Member of the Science Organising Committee of the Demographics and Environments of AGN international conference, Crete, 2015
- Member of the Science Organising Committee of the AGN vs. Star formation international conference, Durham, 2014
- Discussion session lead at the AGN vs. Star formation international conference, Durham, 2014
- Principal supervisor to departmentally-funded PhD student at The University of Sheffield (2013-2017)
- Principal supervisor to two 4th year undergraduate MSci students at The University of Sheffield (2013-2014)
- Organiser of the IDL and python programming postgraduate course at Durham University (2011-2012).
- Principal organiser of the 2009 Durham-Edinburgh Extragalactic meeting.
- Referee for the Monthly Notices of the Royal Astronomical Society and the Astrophysical Journal.

OUTREACH:

- Tapton School, Sheffield, April 2014 - Onwards.
  Regular participation in GCSE and A-Level Physics classes to help the children relate what they are learning to cutting edge physics and astronomy research.
- Manor College Of Technology, Hartlepool, April 2009:
  Interactive presentation to three classes of 11 and 12 years old pupils discussing the benefits and technological challenges associated with Man's recent exploration of Mars.
- Acre Rigg Primary School, Peterlee, March 2009:
  An hour long discussion with a group of 11 year old pupils concerning the current state of the art in both ground based and space based astronomical observatories.
- Beijing, China, March 2008:
  Gave a presentation on the current quest to find extraterrestrial life to a group of young students learning English as a foreign language.
- Framwellgate School, Durham, May 2006:
  Gave a presentation to a group of 14 year old pupils on the history and distance scale of the Universe.
- Sunderland Amateur Astronomy Society, November 2006:
  Presented a talk on the history of the study of Active Galactic Nuclei.