Clare Wethers

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My work explores the role of quasars in galaxy evolution. I am particularly interested in the interplay between nuclear activity, dust content, star formation and galaxy environment. Throughout my research, I have worked with a wide range of multi-wavelength photometric and spectroscopic data.

Keywords: **galaxy evolution; galaxy-quasar connection; multi-wavelength spectroscopy**

Research Experience

University of Turku **2018 - present**
FINCA postdoctoral research fellow in quasar-galaxy co-evolution with Prof. Jari Kotilainen
Key topics: *SFRs of quasar hosts, LoBALs, high-redshift galaxies, quasars in GAMA*

Education

University of Cambridge **2014 - 2018**
Ph.D in Astronomy
Thesis: *"Exploring the Hosts of the Most Massive and Luminous Reddened Quasars"*
Supervisors: Dr. Manda Banerji Prof. Paul Hewett

University of Nottingham **2010 - 2014**
MSc (Hons) in Physics and Astronomy *Class I*
Thesis: *"Hα Emission Lines From Proto-Galaxies"*
Supervisors: Prof. Christopher Conselice

Prizes & Awards

STFC Studentship . . . . . .2014 - 2018
Institute of Physics Research Grant 2013
PriceWaterHouseCooper First YearPrize 2011
Sir Peter Mansfield High-Achiever's Scholarship 2010

Teaching Experience

Co-supervision of Masters student, Nischal Acharya
Title: *"The environments and SFRs of Quasar Hosts in GAMA"*

Active Galactic Nuclei (2020), taught Masters course
University of Turku
Small group tutoring/ demonstrations [5 students]

Galaxies and Cosmology (2020), taught Masters course
University of Turku
Guest lecture: *"Quasars: what are they, how do we find them, and why should we care?"*

The Structure and Evolution of Stars (2015-2017), third year Physics course
Institute of Astronomy, University of Cambridge
Small group tutoring [30 hours]

Observing Experience

- 2 nights IR spectroscopy and imaging at the Nordic Optical Telescope (NOT)
- 8 nights optical imaging with DECam as part of the Dark Energy Survey (DES)

Successful Observing Proposals

SALT-RSS (22.6 hours): *"Is UV Emission in Dust-Obscured Hyper-luminous Quasars Dominated by Star Formation or Scattered Light?"* , 2019, **P.I.**

EFOSC-MOS (4 nights): *"Quasar activity in the neighboring Universe: the role of the environments and star formation"* , 2019, **Co.I** (P.I. Bettoni)

NOTCam (16.0 hours): *"Testing the Evolutionary Picture of LoBALs"* , 2019, **P.I.**

JCMT-SCUBA2 (21.5 hours): *"The SCUBA-2 Red Quasar Survey"* , 2017, **Co.I.** (P.I. Banerji)

Computing Skills

- Languages: Python, MATLAB, bash, LaTEX, HTML, IRAF, PyRAF
- Software: Le PHARE, DS9, GAIA, TOPCAT
- Data reduction: SCUBA-2 Reduction Pipeline, SALT RSS Long-slit Data Reduction, HIPE

Conferences & Workshops

IAU Symposium 359: Galaxy Evolution and Feedback Across Different Environments (GALFEED), Bento Goncalves, Brazil **(speaker)** Mar. 2020

IAU Symposium 356: Nuclear Activity in Galaxies Across Cosmic Time, Addis Ababa, Ethiopia **(speaker)** Oct. 2019

Supermassive Black Holes: Environment and Evolution, Corfu Town, Greece **(speaker)** Jun. 2019

Einasto's Profile: Tartu-Tuorla Cosmology Meeting, Tartu, Estonia **(speaker)** Feb. 2019

Tartu-Tuorla Cosmology Meeting, Turku, Finland **(speaker)** Oct. 2018

Cosmic Mergers Workshop, Birmingham, UK **(speaker)** Sep. 2017

National Astronomy Meeting, Hull, UK **(speaker)** Jul. 2017

Galaxy Evolution Across Time, Paris, France **(poster)** Jun. 2017

DES Collaboration Meeting, Cambridge, UK **(plenary talk)** Dec. 2016

Outreach Activities

School visits: In collaboration with the Ethiopian Space Science and Technology Institute (ESSTI), I visited a secondary school in Addis Ababa to talk about careers in Astronomy.

Astronomy Open Evenings: I led groups of 30 children and young adults from local scout and guide groups in telescope tours and amateur observing sessions at the Institute of Astronomy.

Science Festival: I talked about and demonstrated Astronomy concepts to the genal public and school groups.

Darwin College Science Society: As a founding member, I was responsible for organising regular events covering all Science disciplines, including seminars with guest speakers, discussion panels, field trips and social activities.

"Galaxy and Mass Assembly (GAMA): No Environmental Dependence of QSO Activity at z<0.3"
C. Wethers, N. Acharya, R. De Propris, J. Kotilainen, GAMA Collaboration;
MNRAS submitted

"Galaxy and Mass Assembly (GAMA): The Star Formation Properties of Quasar Host Galaxies"
R. De Propris, N. Acharya, **C. Wethers**, J. Kotilainen, GAMA Collaboration;
in collaboration review

"Star Formation in Luminous LoBAL Quasars at 2.0<z<2.5"
C. Wethers, J. Kotilainen, M.Schramm, A. Schulze;
MNRAS, 498, 1469 (2020)

"The SCUBA-2 850m Reddened Quasar Survey"
C. Wethers, M. Banerji, P. Hewett, G. Jones
MNRAS 492, 5280 (2020)

"No Evidence for Quenching in Quasars"
C. Wethers, N. Acharya, R. De Propris, J. Kotilainen, M.Schramm, A. Schulze;
Conference proceedings - IAUS 359: Galaxy Evolution and Feedback Across Different Environments (2020)

"The Role of LoBALs in Quasar Evolution"
C. Wethers, J. Kotilainen, M.Schramm, A. Schulze;
Conference proceedings - IAUS 356: Nuclear Activity in Galaxies Across Cosmic Time (2019)

"UV-Luminous, Star-Forming Hosts of z∼2 Reddened Quasars in the Dark Energy Survey"
C. Wethers, M. Banerji, P. Hewett, C. Lemon, R. McMahon, S. Reed, Y. Shen + 51 co-authors
MNRAS 475, 3682 (2018)