# 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 (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)*