Giulia Santucci

Title

Stellar population gradients of SAMI central galaxies

Abstract

Galaxy mergers play an important role in how galaxies evolve over time, however extragalactic astronomers do not yet totally understand the process by which those mergers happen.
The brightest galaxies of groups and clusters are extremely luminous galaxies, usually located in the centres of those systems – central galaxies. Simulations predict that these central galaxies have undergone more mergers than other similarly luminous galaxies, making them an excellent test of the merger process. The recent merger history of galaxies can be read through their stellar population gradients. Central galaxies with active merger histories are predicted to have shallower metallicity gradients than satellite galaxies of a similar mass. We examined the stellar population gradients (age, metallicity and alpha-element abundance ratios) of central galaxies in the SAMI galaxy survey to determine whether they are offset from similarly massive satellite galaxies in order to reach a better understanding of the role of mergers in galaxy formation and evolution.

Giulia Santucci

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Education:

July 2018 – ongoing – **Ph.D. in Astrophysics**, University of New South Wales, Sydney, Australia. Title: "*Understanding massive galaxy evolution using integral field observations*". Advisor: Pr. Sarah Brough

Sept. 2014 – Sept. 2016 – **M.Sc. in Astrophysics**, University of Bologna, Bologna, Italy. Project: "*Chemical abundancies of blue straggler stars in the open cluster NGC188*". Advisors: Pr. Francesco R. Ferraro, Pr. Barbara Lanzoni, Dr. Alessio Mucciarelli

Publications:

As first author:

Santucci et al. 2020, ApJ, 896, 75, *The SAMI Galaxy Survey: Stellar Population Gradients of Central Galaxies.*

As contributing author:

Montes, Brough, Owers & **Santucci**, submitted, *The buildup of the intracluster light of Abell 85 as seen by Subaru's Hyper Suprime-Cam.*

Talks:

- *Internal mass distributions and orbital structures of SAMI central and satellite galaxies* - SAMI Science Videocon, September 2020
- 1 minute thesis competition - UNSW Science Post Graduate Showcase, Sydney, July 2020
- *Stellar Population Gradients of SAMI Central Galaxies* - ASA2020, Australia, July 2020

- *Stellar Population Gradients of SAMI Central Galaxies* - SAMI Science Videocon, April 2020
- *Stellar Population Gradients of SAMI Central Galaxies* – Online AstroSeminars @UNSW, Sydney, April 2020
- *Stellar Population Gradients of SAMI Central Galaxies* - Dynamical Reconstruction of Galaxies, Leiden, Feb 2020
- *Stellar Population Gradients of SAMI Central Galaxies* – Seminar @University of Vienna, Vienna, Feb 2020
- *Testing the formation of slow-rotating galaxies* - Dynamical Models of Observed Galaxies, Sydney, June 2019
- *Galaxy gradients* – Student Seminars Mt Stromlo, ANU, Canberra, Nov 2018

Outreach:

- Science videos in collaboration with SISTERS WHO SHINE - from May 2020
- *Tracing the Family Tree of a Galaxy* - U3A Emerging Science Presentation, Zoom, March 2020
- Planetarium Show presenter - Physics Fundraiser, University of New South Wales, Jan 2020
- Science Advisor - UNSW INFO DAY, Dec 2019
- *My life as an astronomer* - Presentation for year 10 students Science work experience presentations, Nov 2019
- Science demonstrator - UNSW OPEN DAY, Sep 2019
- Understanding gravity workshop – demonstrator – Science in the City, Australian Museum, Sydney, August 2019
- *My life as an astronomer* - Astronomy Night, Domremy College, Sydney, Aug 2019
- Planetarium Show presenter – Science Week, Australian Museum, Sydney, July 2019