



## **Dr. Steven Gillman**

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## **Overview**

I am a Postdoctoral Researcher at the Cosmic Dawn Center, National Space Institute (DTU-Space), Denmark. My research focuses on studying galaxy evolution through the use of state of the art observations of high-redshift star-forming galaxies.

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## **Employment**

2020 – **Postdoctoral Researcher** | Technical University of Denmark (DTU), Lyngby, Denmark

Current research interests include: High-redshift, star-forming galaxies, morphology, kinematics, metallicity, integral field spectroscopy, galaxy evolution and formation. I am part of the Cosmic Dawn Center at DTU and I am a member of the MIRI GTO team working on the *JWST* MIRI HUDF Imaging Survey.

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## **Education**

2016 – 2020 **PhD in Astronomy**  
Dept. of Physics, Durham University  
Thesis: Resolved Studies of the Dynamics, Star Formation and Chemical Properties of High-Redshift Galaxies  
Supervisor: Prof. Ray Sharples and Prof. Mark Swinbank

2012 – 2016 **MPhys (Hons) Physics and Astronomy**, First Class  
Dept. of Physics, University of Birmingham  
Masters Thesis: Morphology Density Relation in Low Redshift Galaxy Clusters  
Supervisor: Dr. Graham Smith and Dr. Felicia Ziparo

2015 **Research Internship**  
Dept. of Physics, University of Birmingham  
Project: Galaxy Cluster Scaling Relations  
Supervisor: Dr. Graham Smith and Dr. Sarah Mulroy

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## Publications [\[ADS\]](#)

2020

### **The Evolution of Gas-Phase Metallicity and Resolved Abundances in Star-Forming Galaxies from $z \sim 0.6$ -1.8**

MNRAS Submitted 2020

**S. Gillman** A. L. Tiley, A. M. Swinbank, U. Dudzevičiūtė, R. M. Sharples, Ian Smail, C. M. Harrison, Andrew J. Bunker, Martin Bureau, M. Cirasuolo, Georgios E. Magdis, Trevor Mendel and John P. Stott

### **A kpc-scale resolved study of unobscured and obscured star-formation activity in normal galaxies at $z = 1.5$ and 2.2 from ALMA and HiZELS**

MNRAS Submitted 2020

Cheng Cheng, Edo Ibar, Ian Smail, Juan Molina, David Sobral, Andrés Escala, Philip Best, Rachel Cochrane, **Steven Gillman**, Mark Swinbank, R. J. Ivison, Jia-Sheng Huang, Thomas M. Hughes, Eric Villard and Michele Cirasuolo

### **From Peculiar Morphologies to Hubble-type Spirals: The relation between galaxy dynamics and morphology in star-forming galaxies at $z \sim 1.5$**

MNRAS 492 1492G

**S. Gillman**, A. L. Tiley, A. M. Swinbank, C. M. Harrison, Ian Smail, U. Dudzevičiūtė, R. M. Sharples, L. Cortese, D. Obreschkow, R. G. Bower, T. Theuns, M. Cirasuolo, D. Fisher, K. Glazebrook, Edo Ibar, J. Trevor Mendel and Sarah M. Sweet

2019

### **The Dynamics and Distribution of Angular Momentum in HiZELS Star-Forming Galaxies at $z = 0.8 - 3.3$**

MNRAS 486 175G 2019

**S. Gillman**, A. M. Swinbank, A. L. Tiley, C. M. Harrison, Ian Smail, U. Dudzevičiūtė, R. M. Sharples, P. N. Best, R. G. Bower, R. Cochrane, D. Fisher, J. E. Geach, K. Glazebrook, Edo Ibar, J. Molina, D. Obreschkow, M. Schaller, D. Sobral, S. Sweet, J. W. Trayford, T. Theuns

### **The Shapes of the Rotation Curves of Star-forming Galaxies Over the Last $\sim 10$ Gyr**

MNRAS 485 934T 2019

Alfred L. Tiley, A. M. Swinbank, C. M. Harrison, Ian Smail, O. J. Turner, M. Schaller, J. P. Stott, D. Sobral, T. Theuns, R. M. Sharples, **S. Gillman**, R. G. Bower, A. J. Bunker, P. Best, J. Richard, Roland Bacon, M. Bureau, M. Cirasuolo, G. Magdis

### **Angular momentum of $z \sim 1.5$ galaxies and their local analogues with adaptive optics**

MNRAS 485 5700S 2019

Sarah Sweet, Deanne Fisher, Karl Glazebrook, Danail Obreschkow, **Steven Gillman**, Alfred Tiley, Claudia Lagos, Liang Wang, A. Mark Swinbank; Richard Bower, Ray Sharples

- 2018 **The core of the massive cluster merger MACS J0417.5-1154 as seen by VLT/MUSE**  
MNRAS 483 3082J 2018  
Mathilde Jauzac, Guillaume Mahler, Alastair C. Edge, Keren Sharon, **Steven Gillman**, Harald Ebeling, David Harvey, Johan Richard, Michele Fumagalli, A. Mark Swinbank, Steven L. Hamer, Jena-Paul Kneib, Richard Massey, Philippe Salome
- 2017 **Galaxy cluster luminosities and colours, and their dependence on cluster mass and merger state**  
MNRAS 472 3246 2017  
Mulroy, Sarah L.; McGee, Sean L.; **Gillman, Steven**; Smith, Graham P.; Haines, Chris P.; Démoclès, Jessica; Okabe, Nobuhiro; Egami

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## Conference Talks

- March 2019 **The Angular Momentum Distribution in High Redshift Star-Forming Galaxies**  
Life and Death of Star-Forming Galaxies, Perth, Australia
- January 2019 **The Angular Momentum Distribution in High Redshift Galaxies**  
DEX XV, Royal Observatory of Edinburgh, UK
- December 2018 **The Redistribution of Angular Momentum in High Redshift Star-Forming Galaxies - A KMOS and SINFONI study**  
KMOS @ 5, ESO, Garching, Germany
- November 2018 **The Dynamics and Distribution of Angular Momentum in High Redshift Star-Forming Galaxies**  
Friday Lunchtime Astronomy Talk, Durham, UK
- March 2018 **Integral Field Galaxy Evolution**  
Friday Lunchtime Astronomy Talk, Durham, UK
- June 2017 **IFView of Galaxy Evolution**  
Friday Lunchtime Astronomy Talk, Durham, UK

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## Telescope Proposals

- 2020 **2020A, PI, 39h, HAWK-I**  
Resolving Clumps in High Redshift KMOS GTO Galaxies using HawkI Narrow Band Imaging.
- 2020A, PI, 19.8h, KMOS**  
Resolved Metallicity Gradients in Star Forming Main-Sequence Galaxies at  $z \sim 1.5$

- 2018      **2018B, PI, 3h, HAWK-I**  
Resolving Clumps in High Redshift KMOS GTO Galaxies across Cosmic Time using High Resolution HawkI Narrow Band Imaging
- 2018A, PI, 15h, KMOS  
Resolved Metallicity Gradients in Star Forming Main-Sequence Galaxies at  $z \sim 1.5$

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## Observing Experience

- 2018      **PauCam (WHT 4.2 m)**, Santa Cruz de La Palma, Spain (*4 nights*)  
PI: N. Hatch, Understanding how  $z > 1$  galaxy clusters form
- 2017      **OSIRIS (Keck 10 m)**, W. M. Keck Observatory, Maunakea, Hawaii (*3 nights*)  
PI: K. Glazebrook, Resolving the evolution of galaxy angular momentum and metallicity
- 2017      **KMOS (VLT 8 m)**, Paranal Observatory, Chile (*3 nights*)  
PI: R. Sharples, KMOS Galaxy Evolution Survey (KGES): Tracing the Dynamics, Star-Formation and Chemical Properties of Star-Forming Galaxies Across Half the Age of the Universe

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## Technical Skills

Experience reducing and analysing integral field spectroscopic observations. In particular: VLT-KMOS; VLT-SINFONI and Keck-OSIRIS

Programming knowledge of Python, Unix,  $\text{\LaTeX}$  and basic HTML as well as experience using DS9, ESOREX, GALFIT and SEXTRACTOR

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## Responsibilities, Leadership and Teaching activities

- 2019–2020      Departmental Galaxy Evolution Meeting (GEM) Organiser
- 2018–2019      Weekly Postgraduate Journal Club Organiser
- 2017–2020      Undergraduate Year 2 Stars and Galaxies Workshop Demonstrator
- 2017–2018      Weekly 1st Year Postgraduate Journal Club Organiser
- 2016–2017      Undergraduate Year 1 Problems Administrator

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## Awards and Scholarships

- 2016–2020      **STFC Postgraduate Studentship**  
Centre for Extragalactic Astronomy, Durham, UK
- June 2015      **Gateway Internship Bursary**  
Dept. of Physics, University of Birmingham

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## Professional Memberships

2019–	Fellow of the Royal Astronomical Society
2016–	Member of Institute of Physics
2013–2016	Student Member of Institute of Physics