Max-Planck-Institut für extraterrestrische Physik
Gießenbachstraße 1, 85741
Garching bei München

email: atbarnes@mpe.mpg.de
website: https://ashleythomasbarnes.github.io

Office telephone: +49 89 30000-3008

Ashley Thomas Barnes

EDUCATION & EXPERIENCE

Postgraduate student 2014 — present

Liverpool John Moores University & Max Planck Institute for Extraterrestrial Physics
PhD in Astrophysics
Thesis: A comparison of *Star formation within the Galactic Centre and Galactic Disc*
Supervisors: Steven Longmore and Paola Caselli

Undergraduate student 2010 — 2014

University of Leeds
First class, bachelor and master degrees in Astrophysics
Thesis: *Complex, coherent kinematics in a highly filamentary infrared dark cloud*
Supervisor: Paola Caselli

Research placement summer of 2012 & 2013

University of Leeds
Work during this period published in MNRAS
Subject: *Widespread deuteration across the IRDC G035.39-00.33*
Supervisor: Paola Caselli

RESEARCH INTEREST

The investigation of star, star cluster and molecular cloud formation within a range of Galactic environments using (millimetre and sub-millimetre) radio and infrared observations.

EXPERIENCE

Observational

IRAM-30m telescope (single dish)	**56 hours** of "pool observations" over November 2016
Australia Telescope Compact Array (interferometer)	**a week** of duty astronomer in August, 2016
Australia Telescope Compact Array	**12 hours** of observations in July & September 2016

Data reduction and analysis (https://github.com/ashleythomasbarnes)
Common Astronomy Software Applications (CASA) package for ALMA and VLA observations
GILDAS package for IRAM-30m and NOEMA observations
MIRIAD package for ACTA observations

PUBLICATIONS (First author accepted - 2; Co-author accepted - 5; Total citations - 65)

First Author:

1. *Star formation rates and efficiencies in the Galactic Centre*
   Barnes A. T., Longmore S. N., Battersby C., Bally J., Kruijssen J. M. D., Henshaw J. D., Walker D. L., 2017, MNRAS, 469, 2263
2. *Widespread deuteration across the IRDC G035.39-00.33*
   Barnes A. T., Kong S., Tan J. C., Henshaw J. D., Caselli P., Jiménez-Serra I., Fontani F., 2016, MNRAS, 458, 1990
3. *The complex kinematics of an infrared dark cloud embedded within a Milky Way inter-arm filament*
   A . T. Barnes, J. D. Henshaw, P. Caselli, I. Jiménez-Serra, J. C. Tan, F. Fontani, A. Pon, and S. Ragan, 2017, submitted
4. *Massive star formation within the Bricklet clouds in Galactic Centre: Paper I - continuum and line observations*
   ***A . T. Barnes**, Longmore S. N., Contreras, Y., Henshaw, J. D., Walker, D. L., et al. 2017, in prep*

Co-author:

1. *H_2O Southern Galactic Plane Survey (HOPS): Paper III - properties of dense molecular gas across the inner Milky Way*
   Longmore, S. N., Walsh, A. J., Purcell, C. R., Burke, D. J., Henshaw, J., Walker, D., Urquhart, J., **Barnes, A. T.**, et al., 2017, MNRAS, 470, 1462L
2. *^{15}N fractionation in infrared-dark cloud cores*
   Zeng, S., Jiménez-Serra, I., Cosentino, G., Viti, S., **Barnes, A. T.**, Henshaw, J. D., Caselli, P., Fontani, F., Hily-Blant, P., 2017, A&A, 603A, 22Z
3. *Unveiling the early-stage anatomy of a protocluster hub with ALMA*
   Henshaw, J. D., Jiménez-Serra, I., Longmore, S. N., Caselli, P., Pineda, J. E., Avison, A., **Barnes, A. T.**, Tan, J. C., Fontani, F., 2017, MNRAS, 464L, 31H
4. *Investigating the structure and fragmentation of a highly filamentary IRDC*
   Henshaw, J. D., Caselli, P., Fontani, F., Jiménez-Serra, I., Tan, J. C., Longmore, S. N., Pineda, J. E., Parker, R. J., **Barnes, A. T.**, 2016, MNRAS, 463, 146H
5. *Molecular gas kinematics within the central 250 pc of the Milky Way*
   Henshaw, J. D., Longmore, S. N., Kruijssen, J. M. D., Davies, B., Bally, J., **Barnes A. T.**, et al., 2016, MNRAS, 457, 2675H

Conference proceedings:

1. *Star formation rates on global and cloud scales within the Galactic Centre*
   Barnes, A. T., Longmore, S. N., Battersby, C., Bally, J., Kruijssen, J. M. D., 2017, IAUS, 322, 147B
2. *Using young massive star clusters to understand star formation and feedback in high-redshift-like environments*
   Longmore, S., **Barnes A. T.**, Battersby, C., Bally, J., Kruijssen, J. M. Diederik, Dale, J., Henshaw, J., Walker, D., Rathborne, J., Testi, L., Ott, J., Ginsburg, A., 2014, EAS, 75, 43L

CONFERENCES AND WORKSHOPS

Poster presentation

The 6th MPIA Summer Conference: Galactic Star Formation with Surveys — Heidelberg, July 2017

Star formation rates on global and cloud scales within the Galactic Centre

Contributed talk

MPE-CAS group workshop — Ringberg, Germany, June 2017

The complex kinematics within an infrared dark cloud

Poster presentation

Multi-scale star formation — Morelia, Mexico, April, 2017
Star formation rates on global and cloud scales within the Galactic Centre
Poster presentation

IAUS 322: The Multi-Messenger Astrophysics of the Galactic Centre — Cairns, July 2016
Star formation rates on global and cloud scales within the Galactic Centre
Contributed talk

ASA Annual Scientific Meeting — Sydney, June 2016
Star formation rates on global and cloud scales within the Galactic Centre
Contributed talk

The Soul of High-Mass Star Formation Conference — Puerto Varas, Chile, March 2015
Complex, coherent kinematics in a highly filamentary infrared dark cloud: The case of G034.43+00.24
Five day workshop

Sixth European Radio Interferometry School (ERIS2015) — Munich, October, 2015

OBSERVING PROPOSALS

Successful as PI:

ALMA, cycle 5 — 9 hours of 12m array (77.6 hours including total power)
Project code: 2017.1.00687.S
From filaments to cores: Dynamics in infrared dark clouds

VLA, 2017A semester — 15.0 hours total
Project code: 17A-321
The dynamics of ionised gas within the Galactic Centre

ATCA, April 2016 semester — 40.3 hours total
Project code: C3091
Tracing the conversion of gas into stars in a Galaxy-wide sample of high-mass protoclusters: a pilot study

NOEMA, Winter 2015 semester — 19.4 hours total
Project code: W15AN
Deuterium chemistry in the earliest phases of massive star-formation

I have been the co-PI of 6 successful proposals for ALMA (4), ATCA (1 large program), and IRAM-30m (1).

REFERENCES

Dr. Steve Longmore — email: s.n.longmore@ljmu.ac.uk
Reader in Astrophysics, Astrophysics Research Institute, LJMU, UK

Prof. Dr. Paola Caselli — email: caselli@mpe.mpg.de
Director of Max Planck Institute for Extraterrestrial Physics, Germany

Dr. Izaskun Jiménez-Serra — email: i.jimenez-serra@qmul.ac.uk
STFC Ernest Rutherford Fellow, School of Physics and Astronomy, QMUL, UK