

Jonathan Henshaw

Astrophysics Research Institute
Liverpool John Moores University
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Experience

PDRA **Liverpool John Moores University** **(2014-2017)**

Education

Ph. D. **University of Leeds** **(2010-2014)**
“Kinematics and Physical Structure of a Highly Filamentary IRDC”

MPHYS **University of Leeds** **(2005-2009)**
Physics with Astrophysics, First Class (1:1), Hons.

Research Interests

Star and cluster formation, massive star formation, environmental studies of star formation (Galactic disc, Galactic centre, nearby galaxies), molecular cloud formation, structure, and kinematics, (sub-)millimetre astronomy

Grants & Awards

2014 STFC Studentship Enhancement Programme (STEP) University of Leeds

Professional Service & Activities

- Organising Committee - Northern Star Formation Meeting (LJMU - 2017)
- Referee (MNRAS, The Astrophysical Journal, Astronomy & Astrophysics,)
- PDRA management board representative
- PDRA IoP Juno representative
- Organiser of weekly journal clubs (LJMU)

Software Design & Development <https://github.com/jdhenshaw>

- SCOUSE: Semi-Automated multi-COMponent Universal Spectral line-fitting Engine (IDL)
- IDLE: Iterative Data Linking Engine (IDL, Python)

References

- **Prof. Dr. Paola Caselli (email: caselli@mpe.mpg.de)**
Director of Max Planck Institute for Extraterrestrial Physics, Germany
- **Dr. Steve Longmore (email: s.n.longmore@ljmu.ac.uk)**
Reader in Astrophysics, Astrophysics Research Institute, LJMU, UK
- **Dr. Izaskun Jiménez-Serra (email: i.jimenez-serra@qmul.ac.uk)**
STFC Ernest Rutherford Fellow, School of Physics and Astronomy, QMUL, UK

Selected Telescope Proposals

2016	ATCA Barnes et al. (in prep.); PI: Barnes	40.3 Hrs
2016	VLBA Immer et al. (in prep.); PI: Immer	63 Hrs
2015	NOEMA Barnes, Kong, Tan, Henshaw et al. (in prep.); PI: Barnes	19.4 Hrs
2015	NOEMA Sokolov, Caselli et al. (in prep.); PI: Sokolov	31.4 Hrs
2014	IRAM 30m Henshaw et al. (in prep.); PI: Henshaw	38.8 Hrs
2014	ALMA Henshaw et al. (2016d); PI: Henshaw	1.6 Hrs
2013	IRAM 30m Cosentino, Jiménez-Serra, Henshaw et al. (in prep.); PI: Jiménez-Serra	62.2 Hrs
2012	IRAM 30m Barnes et al. (in prep.); PI: Henshaw	20.0 Hrs
2012	PdBI Henshaw et al. (2014), Henshaw et al. (2016b); PI: Henshaw	20.0 Hrs

Invited Talks & Seminars

2017	"Molecular gas kinematics of the CMZ" Arcetri Astrophysical Observatory (INAF), Italy	Invited seminar
2015	"The complex kinematics of a highly filamentary infrared dark cloud" Filaments 2015, USM, Germany	Invited talk
2015	"The complex kinematics of (massive) star forming regions" CAS seminar, the Centre for Astrochemical Research, MPE, Germany	Invited seminar
2014	"The complex kinematics of (massive) star forming regions" St. Andrews University, UK	Invited seminar
2013	"Interlocking filaments in G035.39-00.33" Harvard-Smithsonian Centre for Astrophysics, US	Invited talk

Selected Scientific Talks & Presentations

2016	"Seeding the Galactic Centre gas stream" Star formation 2016, Exeter, UK	Contributed talk
2016	"Molecular gas kinematics of the CMZ" IAU symposium 322, Palm Cove, Australia	Contributed talk
2015	"Gas kinematics in massive and dense molecular clouds" The kinematics of star formation, RAS, UK	Contributed talk
2014	"The dynamical properties of filaments in the IRDC G035.39-00.33" Mass assembly from clouds to clusters, Sexten, Italy	Contributed talk
2013	"Complex kinematics in a filamentary IRDC" Protostars & Planets VI, Heidelberg, Germany	Poster
2011	"Kinematics in a filamentary IRDC" The Molecular Universe, IAU symposium 280, Toledo, Spain	Poster

Student Supervision

2016	Ashley Barnes (Leeds, LJMU, MPE) Technical assistance, regular meetings, co-authorship Barnes et al., 2016, MNRAS, 458, 1990	Advisory Role Masters & Ph. D.
2016	Katharine Beaumont (LJMU) Technical assistance, regular meetings	Advisory Role Masters thesis
2016	Mark Williams (LJMU) Technical assistance, regular meetings	Advisory Role Masters thesis
2015	Bryony Holloway Technical assistance, regular meetings	Advisory Role Masters thesis

First Author:

6. *Unveiling the early-stage anatomy of a protocluster hub with ALMA*, **J. D. Henshaw**, I. Jiménez-Serra, S. N. Longmore, P. Caselli, J. E. Pineda, A. Avison, A. T. Barnes, J. C. Tan, F. Fontani, 2017, MNRAS, 464L, 31
5. *Seeding the Galactic Centre gas stream: Gravitational instabilities set the initial conditions for the formation of protocluster clouds*, **J. D. Henshaw**, S. N. Longmore, J. M. D. Kruijssen, 2016, MNRAS, 463L, 122
4. *Investigating the structure and fragmentation of a highly filamentary IRDC*, **J. D. Henshaw**, P. Caselli, F. Fontani, I. Jiménez-Serra, J. C. Tan, S. N. Longmore, J. E. Pineda, R. J. Parker, A. T. Barnes, 2016, MNRAS, 463, 146
3. *Molecular gas kinematics within the inner 250 pc of the Milky Way*, **J. D. Henshaw** et al., 2016, MNRAS, 457, 2675
2. *The dynamical properties of dense filaments in the infrared dark cloud G035.39-00.33*, **J. D. Henshaw**, P. Caselli, F. Fontani, I. Jiménez-Serra, J. C. Tan, 2014, MNRAS, 440, 2860
1. *Complex, quiescent kinematics in a highly filamentary infrared dark cloud*, **J. D. Henshaw**, P. Caselli, F. Fontani, I. Jiménez-Serra, J. C. Tan, A. K. Hernandez, 2013, MNRAS, 417, 2950

Co-Author:

3. *Widespread deuteration across the IRDC G035.39-00.33*, A. T. Barnes, S. Kong, J. C. Tan, **J. D. Henshaw**, P. Caselli, I. Jiménez-Serra, F. Fontani, 2016, MNRAS, 458, 1990
2. *Constraining globular cluster formation through studies of young massive clusters - V. ALMA observations of clusters in the Antennae*, I. Cabrera-Ziri, N. Bastian, S. N. Longmore, C. Brogan, K. Hollyhead, S. S. Larsen, B. Whitmore, K. Johnson, R. Chandar, **J. D. Henshaw**, B. Davies, J. E. Hibbard, 2015, MNRAS, 448, 2224
1. *Gas kinematics and excitation in the filamentary IRDC G035.39-00.33*, I. Jiménez-Serra, P. Caselli, F. Fontani, J. C. Tan, **J. D. Henshaw**, J. Kainulainen, A. K. Hernandez, 2014, MNRAS, 439, 1996

Conference Contributions:

5. *Molecular gas kinematics of the CMZ: Great oaks from little acorns grow*, **J. D. Henshaw**, 2016, IAU Symposium 322, The Multi-Messenger Astrophysics of the Galactic Centre, Eds. R. Crocker, S. Longmore & G. Bicknell, Cambridge University Press, 2016, <https://arxiv.org/abs/1609.09749>
4. *A brief update on the CMZoom survey*, C. Battersby, E. Keto, Q. Zhang, S. N. Longmore, J. M. D. Kruijssen, T. Pillai, J. Kauffmann, D. Walker, X. Lu, A. Ginsburg, J. Bally, E. A. C. Mills, **J. D. Henshaw**, K. Immer, N. Patel, V. Tolls, A. Walsh, K. Johnston, L. C. Ho, IAU Symposium 322, The Multi-Messenger Astrophysics of the Galactic Centre, Eds. R. Crocker, S. Longmore & G. Bicknell, Cambridge University Press, 2016, <https://arxiv.org/abs/1610.05805>
3. *Using young massive clusters to understand star formation and feedback in high-redshift-like environments*, S. N. Longmore, A. T. Barnes, J. Bally, J. M. D. Kruijssen, J. Dale, **J. D. Henshaw**, D. Walker, J. Rathborne, L. Testi, J. Ott, A. Ginsberg, Conditions and Impact of Star Formation, Eds. R. Simon, R. Schaaf and J. Stutzki, EAS Publications Series, 2016, <https://arxiv.org/abs/1601.02654>
2. *Complex kinematics in a highly filamentary IRDC*, **J. D. Henshaw**, P. Caselli, I. Jiménez-Serra, F. Fontani, J. C. Tan, 2014, Protostars and Planets VI, Heidelberg, July 15-20, 2013, Poster 1S021
1. *CO gas kinematics and excitation in a filamentary IRDC: Filament-filament interaction and accretion processes*, I. Jiménez-Serra, P. Caselli, F. Fontani, J. C. Tan, **J. D. Henshaw**, J. Kainulainen, A. K. Hernandez, Protostars and Planets VI, Heidelberg, July 15-20, 2013, Poster 1S034

Media Coverage:

1. *The Milky Way's Central Molecular Zone*, Harvard Center for Astrophysics press release, 2016, <https://www.cfa.harvard.edu/news/su201609>, re-blogged by SciTech Daily & Physorg.com

Papers in preparation (anticipated publication within 6 months):

3. *Investigating the next generation of massive protocluster clouds within the CMZ*, **J. D. Henshaw**, S. N. Longmore, J. M. D. Kruijssen, 2016, in preparation
2. *Velocity structure in giant molecular filaments*, S. E. Ragan, **J. D. Henshaw**, S. N. Longmore, 2016, in preparation
1. *Star formation in a high-pressure environment: An SMA view of the Galactic Centre dust ridge*, D. L. Walker, S. N. Longmore, C. Battersby, E. Keto, J. M. D. Kruijssen, A. Ginsburg, X. Lu, **J. D. Henshaw**, J. Kauffmann, T. Pillai, E. A. C. Mills, A. Walsh, J. Bally, L. C. Ho, K. Immer, K. G. Johnston, 2016, in preparation