

Dr Ahmad A. Ali

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Employment

2019 – present **Postdoctoral Research Fellow**
ERC project ICYBOB, PI Prof. Clare Dobbs
University of Exeter, UK

2018 – 2019 **Postdoctoral Research Associate**
PI Prof. Tim Harries
University of Exeter, UK

Education

2014 – 2018 **PhD Physics**
Formation and feedback processes of massive stars in clusters
Supervised by Prof. Tim Harries
University of Exeter, UK

2010 – 2014 **MSci Astrophysics**
Master's thesis: *Far-infrared spectroscopy of planetary nebulae with Herschel SPIRE*
Supervised by Prof. Bruce Swinyard
University College London, UK

Publications (view on ADS)

As first author

- *Stellar winds and photoionization in a spiral arm*
Ali A. A., Bending T. J. R., Dobbs C. L., 2022, MNRAS, 510, 5592
- *The growth of H II regions around massive stars: the role of metallicity and dust*
Ali A. A., 2021, MNRAS, 501, 4136
- *Massive star feedback in clusters: variation of the FUV interstellar radiation field in time and space*
Ali A. A., Harries T. J., 2019, MNRAS, 487, 4890
- *Modelling massive-star feedback with Monte Carlo radiation hydrodynamics: photoionization and radiation pressure in a turbulent cloud*
Ali A., Harries T. J., Douglas T. A., 2018, MNRAS, 477, 5422

As co-author

- *The evolution of protoplanetary discs in star formation and feedback simulations*
Qiao L., Haworth T. J., Sellek A. D., Ali A. A., 2022, MNRAS, 512, 3788

- *The impact of pre-supernova feedback and its dependence on environment*
McLeod A. F., **Ali A. A.**, Chevanche M., et al., 2021, MNRAS, 508, 5425
- *Shape Analysis of HII Regions – II. Synthetic Observations*
Campbell-White J., **Ali A. A.**, Froebrich D., Kume A., 2020, MNRAS, 496, 4311
- *The TORUS radiation transfer code*
Harries T. J., Haworth T. J., Acreman D., **Ali A.**, Douglas T., 2019, Astronomy and Computing, 27, 63
- *Radiation-hydrodynamical simulations of massive star formation using Monte Carlo radiative transfer - II. The formation of a 25 solar-mass star*
Harries T. J., Douglas T. A., **Ali A.**, 2017, MNRAS, 471, 4111

Successful proposals

Computing time awarded on UK DiRAC supercomputers (<https://dirac.ac.uk/>):

- 2020 – 2021 2.16 million core-hours (as co-I for Director's Discretionary Award, PI: TJ Haworth, QMUL)
- 2019 – 2022 10 million core-hours (sub-project in Thematic Project, PI: MR Bate, Exeter)
- 2017 – 2020 3.5 million core-hours (sub-project in Thematic Project, PI: MR Bate, Exeter)

Research expertise and skills

- Star formation
- Feedback - photoionization, radiation pressure, stellar winds
- Interstellar medium/H II regions
- Numerical hydrodynamics - grid, SPH
- Monte Carlo radiative transfer
- Synthetic observations (e.g. recombination/forbidden lines, free-free, dust continuum)
- Experienced with Fortran, Python, MPI, OpenMP, SVN, Git

Research talks

- Sep 2022 Wheel of Star Formation
Prague, Czech Republic
- Jul 2022 A Holistic View of Stellar Feedback and Galaxy Evolution
Ascona, Switzerland
- Apr 2022 Bringing Stellar Evolution and Feedback Together
Lorentz Centre, Leiden, Netherlands
- May 2021 ISM 2021
Beirut, Lebanon (online)
- Mar 2020 Modelling High-Mass Stellar Feedback
University of Tübingen, Germany

- Sep 2019* From Gas to Stars: The Links between Massive Star and Star Cluster Formation (StarFormMapper final conference)
York, UK
- Nov 2018* Seminar - Radiative feedback from massive stars
University of Kent, UK
- Aug 2018* Star Cluster Formation: Mapping the first few Myrs (StarFormMapper 2nd conference)
Université Grenoble Alpes, France
- Sep 2017* Galactic Star Formation
University of Cardiff, UK
- Aug 2017* DiRAC Science Day
University of Exeter, UK
- Jan 2017* Meeting on star formation and ISM
London, UK

Conference organisation

- SOC *Jul 2021* National Astronomy Meeting session on Cosmic Star Formation
online/University of Bath, UK
- LOC *Jun 2019* 14th International SPHERIC SPH Workshop
University of Exeter, UK
- LOC *Aug 2016* Star Formation 2016
University of Exeter, UK

Teaching roles

- Jan 2020 – Jun 2021* Co-supervising MPhys project for 2 students (*Identifying supernovae shells in galaxy simulations*)
- Sep 2018 – Mar 2019* Maths problems senior tutor
- 2017* IT skills demonstrator
- 2015 – 2018* Maths problems tutor
- 2015 – 2018* Physics problems tutor
- 2014 – 2018* Physics lab demonstrator