Dr Ahmad A. Ali

Dept. of Physics & Astronomy, University of Exeter, UK
Email: A.Ali2@exeter.ac.uk
Website: https://a-a-ali.github.io

Employment & education

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

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, in press

- *The impact of pre-supernova feedback and its dependence on environment*
  McLeod A. F., **Ali A. A.**, Chevance 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

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

Chair	*Jul 2023 (tbd)*	Stellar environments: star/cluster formation and feedback University of Exeter, UK
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