Dr Ahmad A. Ali

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Employment

2019 – present **Postdoctoral Research Fellow**
PI: Prof. Clare Dobbs (ERC project ICYBOB)
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
Supervisor: Prof. Tim Harries
University of Exeter, UK

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

Publications (view on ADS)

As first author (68 citations)

1. *Stellar winds and photoionization in a spiral arm*
Ali A. A., Bending T. J. R., Dobbs C. L., 2022, MNRAS, 510, 5592
2. *The growth of H II regions around massive stars: the role of metallicity and dust*
Ali A. A., 2021, MNRAS, 501, 4136
3. *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
4. *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 (86 citations)

1. *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

2. *The impact of pre-supernova feedback and its dependence on environment*
   McLeod A. F., **Ali A. A.**, et al., 2021, MNRAS, 508, 5425
3. *Shape Analysis of HII Regions – II. Synthetic Observations*
   Campbell-White J., **Ali A. A.**, Froebrich D., Kume A., 2020, MNRAS, 496, 4311
4. *The TORUS radiation transfer code*
   Harries T. J., Haworth T. J., Acreman D., **Ali A.**, Douglas T., 2019, Astronomy and Computing, 27, 63
5. *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:

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

Research expertise and skills

- Massive star formation
- Stellar feedback in the ISM - photoionization, radiation pressure, winds, supernovae
- Numerical hydrodynamics - grid, smoothed particle hydrodynamics
- 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

Invited seminars:

Jan 2023	Stellar feedback and cluster formation in different galactic environments University of Oxford, UK
Sep 2022	How does stellar feedback depend on environment? Princeton University, USA
Nov 2018	Radiative feedback from massive stars University of Kent, UK

Selected conference talks between 2018–22:

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
Aug 2018	Star Cluster Formation: Mapping the first few Myrs (StarFormMapper 2nd conference) Université Grenoble Alpes, France

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

2020 – 2021	Co-supervising MPhys project for 2 students (*Identifying supernovae shells in galaxy simulations*)
2018 – 2019	Maths problems senior tutor (70 hours)
2015 – 2018	Maths problems tutor (50 hours/yr), Physics problems tutor (40 hours/yr)
2014 – 2018	Physics lab demonstrator (80 hours/yr)