

# Dr Ahmad A. Ali

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## Employment

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- 2023 – present    **Postdoctoral Researcher**  
PI: Prof. Stefanie Walch-Gassner  
University of Cologne, Germany
- 2019 – 2023    **Postdoctoral Research Fellow**  
PI: Prof. Clare Dobbs  
University of Exeter, UK
- 2018 – 2019    **Postdoctoral Research Associate**  
PI: Prof. Tim Harries  
University of Exeter, UK

## Education

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- 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)

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### As first author

1. *Star cluster formation and feedback in different environments of a Milky Way-like galaxy*  
**Ali A. A.**, Dobbs C. L., Bending T. J. R., Buckner A. S. M., Pettitt A. R., submitted
2. *Stellar winds and photoionization in a spiral arm*  
**Ali A. A.**, Bending T. J. R., Dobbs C. L., 2022, MNRAS, 510, 5592
3. *The growth of H II regions around massive stars: the role of metallicity and dust*  
**Ali A. A.**, 2021, MNRAS, 501, 4136
4. *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
5. *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

1. *Bringing Stellar Evolution and Feedback Together: Summary of Proposals from the Lorentz Center Workshop*  
Geen S., Agrawal P., Crowther P. A., Keller B. W., de Koter A., Keszthelyi Z., van de Voort F., Ali A. A., et al., 2023, PASP, 135, 021001
2. *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
3. *The impact of pre-supernova feedback and its dependence on environment*  
McLeod A. F., Ali A. A., et al., 2021, MNRAS, 508, 5425
4. *Shape Analysis of HII Regions – II. Synthetic Observations*  
Campbell-White J., Ali A. A., Froebrich D., Kume A., 2020, MNRAS, 496, 4311
5. *The TORUS radiation transfer code*  
Harries T. J., Haworth T. J., Acreman D., Ali A., Douglas T., 2019, Astronomy and Computing, 27, 63
6. *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

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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

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- 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

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Invited seminars:

*Feb 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

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- 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

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- 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)