JOSEPH EATSON

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EDUCATION

University of Leeds ***2013-2022***
Ph.D. in Astrophysics - *Numerical Simulations of Dusty Colliding Wind Binaries* ..... In Progress
BSc & MPhys in Physics & Astrophysics 2:1

Enfield Grammar School ***2006-2013***
A-Levels ..... A in History & Mathematics, B in Physics
GCSEs ..... 13, with 6 A-grade

RESEARCH PROJECTS

Numerical Simulations of Dusty Colliding Wind Binaries ..... ***Thesis***
Ph.D. Research Project - University of Leeds *2017-2022*

- Creation of highly performant numerical code for performing fluid dynamics simulations of Colliding Wind Binary systems.
- Extensive modification to existing Athena++ hydrodynamical code.
- Performed parameter space exploration on requirements for dust formation in Colliding Wind Binary Systems.
- Simulations on observed systems such as WR98a, WR104 and WR140 performed, with particular interest in impact of orbital eccentricity on dust formation rates.
- Novel passive scalar model for simulating dust growth, destruction and cooling within a numerical simulation.

A Comedy of Uncertainties - Mapping Stellar Clusters Using Spatial & Multi-Stage Sub-Clustering Methods ..... ***Project Report***
MPhys Research Project - University of Leeds *2016-2017*

- Experimentation with sub-clustering methods for application in open clusters and OB associations.
- Used R statistical language to perform sub-clustering.
- Results were promising, but subject to additional data from GAIA satellite that was not available until after submission.

SKILLS

Teaching ..... 5 years teaching & assessing lab skills and Python to undergraduates
Fluent Programming Languages ..... C, C++, Python 2.7-3.9, R
Additional Programming Languages ..... Fortran90, Julia, Rust
Libraries & APIs ..... OpenMP, OpenMPI, Numba, Cython
Practical Knowledge ..... Telescope operation, server &
Tools & Environments ..... VSCode, RStudio, GNUPlot, Athena++, SGE, LaTeX
Programming Strengths ..... Highly-optimised, multi-threaded code for use in HPC environments