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How I Wonder What You Are: **The Birth, Life and Death of Stars**

“Twinkle, twinkle, little star, how I wonder what you are!” How often did we sing that as a child without realising what we were asking? Well, with the aid of some of the latest astronomical images, the wonder of what stars are is revealed in this highly informative presentation that includes: how stars form in clouds of molecular gas and dust scattered about in the interstellar medium (ISM) of our Milky Way galaxy; how they then evolve and synthesise the elements that make life possible; and how at the end of their lives, they return this material to the ISM for the next generation of stars, either as red giants and planetary nebulae or more catastrophically as exploding supernovae. The speaker also provides a feel for the sheer number of stars in the Milky Way, the enormous distance scales in our Galaxy and the range of densities encountered, from the most tenuous parts of the ISM to the compact cores of the most massive stars.

Background image: Herschel Space Observatory image of a region near the Galactic Plane, containing a network of filamentary structures with features indicative of a chain of near-simultaneous star-formation events (ESA and the SPIRE & PACS Consortia)



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by Dr Paul Ruffle

Paul is a visiting research fellow in the Jodrell Bank Centre for Astrophysics at the University of Manchester. Prior to this he worked in the USA for the National Radio Astronomy Observatory (NRAO) as a support scientist on the 100 metre Green Bank Telescope (GBT), the world's largest fully steerable single aperture antenna.



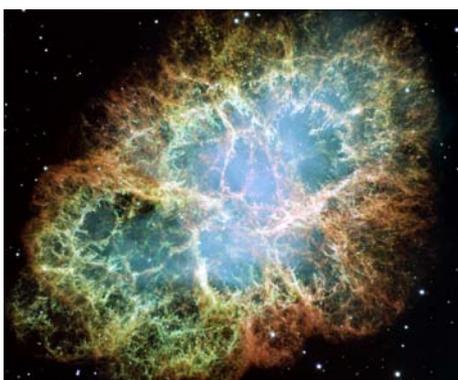
His research interests include planetary nebulae (PNe) and the chemistry of low metallicity environments such as molecular clouds at the edge of our Galaxy or molecular gas in dwarf irregular galaxies. He is also interested in the role of dust in the interstellar medium (ISM) and how it relates to the formation of molecular clouds and subsequent star formation, especially in the early Universe.



He is currently investigating the different modes of star formation in the most distant low metallicity molecular cloud in the Milky Way, as well as developing the Xgear project for astrochemical modelling. He is also a collaborator on the James Clerk Maxwell Telescope (JCMT) Spectral Legacy Survey (SLS).



Paul started his career in the late sixties, working as a graphic artist in design studios and advertising agencies in London. In the mid-eighties he got involved with computers and the electronic publishing revolution. This led to working for a large corporation producing multilingual publications and multimedia. He also ran his own company providing consultancy services and building internet web sites.



Despite his creative abilities he always had a strong interest in physics and astronomy, so in 1989 he started studying in his spare time for a physics degree with the Open University and completed his BSc in 2002. After that he took up a full time PhD research studentship in astrophysics at The University of Manchester, which he completed in 2006. He has been an Associate Lecturer for the Open University, and also does some teaching at The University of Manchester.

See www.paulruffle.com/astro.htm for more details.

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