

## Star chemistry

### Dr. Serena Viti



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Serena was born in Italy in 1972. She came to England aged 19 having completed the scientific course in an Italian 'lyceum', or secondary school. As a child Serena became interested in Astronomy, so she studied Astronomy at Queen Mary and Westfield College, part of the University of London. Serena liked living in London and so stayed here to study for a research degree called a PhD (Doctor of Philosophy) at University College, also part of London University. She is now a researcher and lecturer in astronomy. She works on the chemistry of the interstellar medium, star formation and how gas and dust interact.

#### Serena says:

My research deals with studying the chemistry and physics of how stars form. In particular, during the last few years, I tried to understand how stars form from the interstellar medium (ISM), and yet throughout their lifetime feed material back into the ISM. This involves studying the interaction and exchange between very different environments, in that most stars are mainly hydrogen and are very hot; the ISM on the other hand is usually cold, dusty and made up of hundreds of different atomic and molecular species. A complex chemical and physical evolution must take place in the stellar environments. I study this evolution by:

- i) developing models where the chemistry and the physics of the interaction between stars and the ISM is considered for different environments, such as low mass star and high mass star forming regions; and by
- ii) carrying out a series of observations to detect molecular species in space, tracing the dense gases that form stars.

I have chosen to work in this area because of its interdisciplinary nature: it requires a strong interaction between:

- (i) the physical and chemical modelling of the gas and dust forming our Universe;
- (ii) astronomical observations of the interstellar medium;
- (iii) experimental laboratory data which provide information on the chemical reactions taking place in the ISM.

In general, being a researcher and a lecturer in astronomy is a fun job: it involves sharing my time between doing research and teaching undergraduates the basics that were once taught to me and that allowed me to get such a fascinating and varied job. Doing research involves spending many hours studying, using computers, and talking to other researchers to hear and share their ideas; but it also involves travelling to go to conferences, giving talks, going observing at international telescopes (usually in exotic locations!), and spending times at other universities, both in UK and overseas. So, it is definitely not a boring or monotonous job!

