

## Maxwell Lecture at King's College

Mo 29 Sep      Giovanna Tinetti, Professor of Astrophysics, Royal Society URF  
University College London, Dept. of Physics and Astronomy

### The exoplanet revolution

Our knowledge of planets other than the eight “classical” Solar System bodies is in its infancy. We are discovering thousands of planets orbiting stars other than our own, and yet we know little or nothing about their chemistry, formation and evolution. Planetary science therefore stands at the threshold of a revolution in our knowledge and understanding of our place in the Universe: just how special are the Earth and our Solar System? It is only by undertaking a comprehensive chemical survey of the exoplanet population that we can hope to answer these critical questions.

Little more than 10 years ago, the detection of a signal from an exoplanet atmosphere was still in the realm of science fiction. Pioneering results were then obtained through transit spectroscopy with Hubble, Spitzer and ground-based facilities, making it possible the detection of ionic, atomic and molecular species and of the planet’s thermal structure.

With the arrival of improved or dedicated instruments in the coming decade, planetary science will expand beyond the narrow boundaries of our Solar System to encompass our whole Galaxy.

Mo 6 Oct

Mo 13 Oct      Marina Kuimova, Imperial

Mo 20 Oct      Emmanuel Fort, Paris

Reading week 27 Oct

Mo 3 Nov      Carolyn Crawford, Cambridge

Mo 10 Nov      Todd Huffmann, Oxford

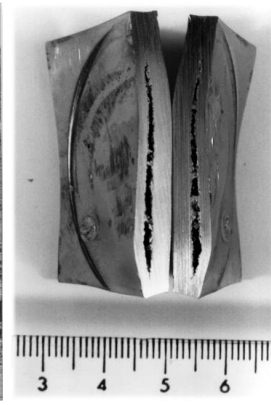
Mo 17 Nov      Tony Mann, maths Greenwich?

Mo 24 Nov      Daniel Pooley, STFC, neutron scattering

Mo 1 Dec      William Proud, Imperial

### **Shock and Blast Waves: Natural, Accidental and Scientific**

**The Subject:** Shock waves can be thought of as very high-pressure pulses which move through material causing rapid acceleration, temperature rise and velocity changes. They are often thought of as destructive as a result. This talk will provide an overview of this area including natural shock waves, accidents, technical applications and fundamental research which can be conducted using this phenomena e.g. turning graphite into diamond, investigating the process during high-velocity impact and protection of people and vehicles from blast waves. Examples will be illustrated by high-speed photography.



***Natural: Mount St. Helens / Accidental: Effects of Explosion in North Korean accident / Scientific: the dynamic strength of iron.***

**The speaker:** WG Proud is the director of the Institute of Shock Physics, Imperial College London and chair of the Institute of Physics Shock Waves and Extreme Conditions Group. He has been investigating shock waves since 1994 and has written numerous articles on the subject.

Mo 8 Dec – only Monday and Tuesday teaching