

Invited lecture

**THE ROLE OF LINE PROFILES IN ANALYZING SPECTRA
OF SUPERNOVAE**

JOHN DANZIGER

*Osservatorio Astronomico di Trieste, Italy
E-mail: danziger@ts.astro.it*

It is intended to show how the measurement of absorption and emission line profiles from supernova envelopes can be used as diagnostic tools. In various ways they allow one to draw quantitative conclusions about physical conditions in the expanding envelope and in the surrounding gas. Various applications have given information on: dust formation and its distribution in the envelopes; on shock interaction with the circum-stellar material in which both forward and reverse shocks may be present; on stratification of material and particular elements in the expanding envelopes; on the distribution of material surrounding supernovae.

Invited lecture

**WHISTLER WAVE – PARTICLE INTERACTION IN A
TEMPERATE IONOSPHERE-LIKE PLASMA**

ALBERT ELLINGBOE

*Dublin City University, School of Physics
Plasma Research Laboratory,
Collins Avenue, Glasnevin, Dublin, Ireland
E-mail: be@physics.dcu.ie*

Whistler waves are produced when beam electrons, produced by a lightning strike near one of earth's magnetic poles, approach the opposite pole and the associated increase in magnetic field. Bound whistlers, called 'helicon waves', have been used to produce high-density, large-area plasmas. The nature of the wave-plasma interaction has received considerable investigation. Particularly contentious has been experimental verification of production of beams of hot electrons in an opposite-analogous method to the formation of whistlers. Measurements of the plasma-wave-fields and rf-phase-resolved optical emission spectroscopy has been used to demonstrate that bunched electrons are produced, and that the electrons propagate axially resonant with the propagating EM wave.

Invited lecture

EFFECTS OF LINE PROFILES IN T DWARFS

PETER HAUSCHILDT