Address of the President (Dr C.Jordan) on the Presentation of the Herschel Medal to Professor G.R.Isaak on Friday 1995 December 8

The Herschel Medal for 1995 is awarded to Professor George Isaak for his pioneering work in measuring global solar oscillations, of which he was a codiscoverer.

In 1969 Professor Isaak began to develop a new application of resonance scattering techniques with the aim of detecting planetary companions to stars. In 1975, together with his colleagues, Brooks and Van der Raay, he discovered solar oscillations with a period of 2.65 h. Later, in 1978 and 1979, he made measurements from two sites simultaneously to establish convincingly that the 5 min oscillations, previously thought to be a surface manifestation of convection, were in fact global oscillations of the Sun. He then pressed successfully for the setting up of a network of observing stations to eliminate diurnal effects and improve the accuracy of the measurements.

The global oscillations are observed using a resonance scattering spectrometer, and differential techniques allow the removal of line shifts from known sources. Signals with velocity amplitudes down to the order of mm s^{-1} on the Sun can now be measured from long integration times. These precise measurements have opened up a whole new field of solar ‘seismology’ since, as in geophysics, the various modes and degrees of the oscillations allow the properties of the otherwise unobservable solar interior to be explored. The field is now being developed to make similar observations of stars.

Several groups around the world have since developed similar or complementary techniques or are engaged in the theoretical interpretation of a wide range of observations. The SoHO satellite, launched last week, carries instruments to search for further wave models. Professor Isaak is awarded the Herschel Medal in recognition of his experimental and observations skills, and his vision of the wide applicability of resonance scattering techniques, initiating what has become a whole new field of solar and stellar studies.

Professor Isaak, it gives me great pleasure to present you with the Herschel Medal of the Royal Astronomical Society.