A Curious Paradox

Allowance for di-electronic recombination removes some discrepancies between observations and earlier calculations of the ionisation equilibria in nebulae. Others have been removed by taking account of charge-transfer with hydrogen, \( X^+ + H = X + H^+ \), for which empirical studies have been made by D. Péquignot of the Paris Observatory and quantum calculations have been made by A. Daligarno and collaborators at Harvard. In nebulae, most of the hydrogen is ionised but it is a curious paradox (explained in terms of the \( \lambda^3 \) dependence of the hydrogen photo-ionisation cross-section) that the fraction of neutral \( H \) can be larger for a high-excitation nebula, photo-ionised by a very hot star. The charge-transfer process is found to be particularly important in nebulae of high excitation.

Further Reading


1985 Hewlett-Packard Europhysics Prize

The 1985 Hewlett-Packard Europhysics Prize has been awarded equally to Dr. Jens A. Als-Nielsen of the Riso National Laboratory, Roskilde, Denmark and Dr. Michael Pepper of the Cavendish Laboratory, Cambridge and the GEC Hirst Research Centre, Wembley, England, for "their contributions to the experimental study of low-dimensional physics". The presentation will be made at the 5th CMD Conference in Berlin (see above).

5th EPS CMD General Conference in Berlin (West)

The annual general conferences of the Condensed Matter Division are developing very successfully.

After the "new beginnings" with the first general conference in Antwerp (1980) (see Europhysics News, May, 1980) with over 600 participants, the question was whether such a Conference could be held on a regular basis as a kind of European counterpart to the March Meeting of the American Physical Society. Those that followed in Manchester (1982), Lausanne (1983), Den Haag (1984) have confirmed the need. The number of participants has remained at over 600.

The 1984 Conference in Den Haag with Prof. F. Mueller as Chairman and Prof. P. Wyder as Chairman of the Programme Committee offered outstanding plenary talks and symposia, starting with R. Schieffer's talk on solitons in condensed matter and closing with G. 't Hooft's talk which reviewed techniques and concepts common to condensed matter physics and elementary particle theory. Other plenary speakers were Hiltsbahn, de Gennes, Benedek, Geballe, Hilsum, Binnig. Several of the symposia created a great deal of enthusiasm, and in particular the one on the quantum Hall effect (von Klitzing and fractional).

The 5th General Conference will take place in Berlin from March 18-22, 1985. Sessions will be held in the buildings of the Physics Department of the Technical University in Berlin - Charlottenburg. Just as The Institute of Physics did in 1982, the German Physical Society has agreed to cancel its 1985 "Frühjahrstagung" to act as host for the organization of the Conference.

Under the chairmanship of Prof. J. Treusch and with Prof. M. Cardona as Programme Committee Chairman, the 5th General Conference holds great promise with close to 1000 contributed papers and an exciting plenary program and symposia of recent developments. The number of suggestions which were made to the Programme Committee for invited papers was indeed impressive; research in condensed matter physics is doing well in Europe.

We look forward to a great meeting.

J.T. Devreese
Chairman of the Condensed Matter Division