

Preface

This year the Indian Academy of Sciences celebrates its **Diamond Jubilee**. To commemorate this we plan to reproduce in these issues some classic papers by distinguished Fellows of the Academy that pertain to Astronomy. This year also marks the Birth Centenary of S. N. Bose. In this issue we reproduce his seminal paper of 1924 in which he put forward the statistics obeyed by photons. This profound discovery marked the birth of Quantum Statistics. Bose sent his paper to the *Philosophical Magazine* for publication, but extraordinarily they turned it down. This inspired Bose to send his paper to Einstein in Berlin with a request to have it translated into German and to have it published in the *Zeitschrift für Physik*. The rest is history. Einstein translated Bose's paper into German and had it published. A re-translation into English of this fundamental paper appeared in the *American Journal of Physics*, Vol. 44, No. 11, November 1976. We have reproduced this with the kind permission of the Editors of the *American Journal of Physics*.

One of the most radical ideas in observational astronomy in this century is the Intensity Interferometer invented by R. Hanbury Brown, Fellow of the Indian Academy of Sciences, and R. Q. Twiss. This novel idea exploited the fact that photons obeyed Bose statistics, and in a sense marked the birth of Quantum Optics. We have also reproduced their famous paper. It may be recalled that this idea of Hanbury Brown and Twiss stirred up a great controversy in the physics community. In a historic paper published in *Nature* the same year, E. M. Purcell gave an elegant exposition of this idea in which he showed that the brilliant "idea of Hanbury Brown and Twiss, far from requiring a revision of quantum mechanics, is an instructive illustration of its elementary principles". With the kind permission of the Editors of *Nature* we have reproduced this beautiful paper by Purcell.