

Foreword

Prof. A. C. Das was born on 1st March, 1939 in Goalpara, Assam. After completing his post-graduation from Gauhati University and spending a couple of years in teaching at St. Anthony's College Shillong, Cotton College Gauhati and Mathematics Department at University of Gauhati, he went to Imperial College of Science and Technology, London on an Assam Government Fellowship in 1964. He worked with Prof. J. W. Dungey, the pioneer in the physics of magnetosphere, and obtained his Doctorate Degree in 1968. He joined PRL in April 1969 as a visiting scientist. During 1978-79, Prof. Das was awarded the Humboldt Foundation Fellowship and visited Max Planck Institute of Aeronomie, Lindau, Germany.

Research papers of Prof. Das have made deep impressions on the physics of various processes in space and basic plasmas involving plasma instabilities, non-linear wave-particle and wave-wave couplings, and turbulence. His early investigations, amongst other problems, concentrated on mechanisms of VLF emissions in magnetosphere. He and his collaborators made substantial contributions in various aspects of this topic and in whistler mode emissions. In an outstanding work, Prof. Das with Prof. J. A. Fejer treated the three dimensional saturation spectrum of the parametric decay instability. That work formed the basis for developing theoretical models to understand the observed electromagnetic emissions during the ionospheric modification experiments. Prof. Das with Prof. W. H. Ip considered the mechanism of particle acceleration by kinetic Alfvén waves in the plasma-torus of Io and showed that it provides a theory for explaining many observed features of the electromagnetic emissions. He with his colleagues researched on substorm and magnetic reconnection and predicted a new mechanism for the evolution of the tearing mode instabilities. He also investigated magnetosphere of accretion discs around compact objects.

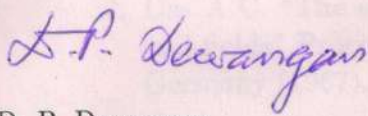
Prof. Das made significant contributions to the development and growth of academic as well as general environment of this Laboratory. He headed several committees, which include the PDF and the academic committees. He was the Chairman of the Theoretical Physics Division and served as the Dean for the period 1993-1997. In his various capacities, he interacted closely with students, PDFs, faculty members, visitors, administrators, dignitaries etc. His soft-spoken pleasant manners, with well defined objective became evident during such meetings, be it in science or in administrative affair. He showed a remarkable gift of staying out of any heated discussion. His dedication to work coupled with unbiased and broadminded approach were probably the reasons for him being entrusted with a great deal of responsibilities.

I have known Prof. Das for over two decades and have admired him not only for his good physics but also for being so modest and humble. Although he, as a reputed

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scientist, commands high respect in his community, I have never seen him publicizing or boasting of his achievements. In his personal life, he is rather simple, unassuming and willing to hear other's view patiently.

I consider it a privilege to get this opportunity to write these few words about Prof. Das who superannuated as Senior Professor in February 1999. During his scientific career continuing for more than three decades, Prof. Das has written research papers on a wide-range of topics and it is a pleasure to present them all in a single volume. I thank my colleagues in the Theoretical Physics Division and PRL Library for their help which made this volume to take its present form.



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10th April, 1999.

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