



Physical Research Laboratory, Ahmedabad

Special Colloquium 17-21

- Speaker:** Swadesh M Mahajan
Professor, Department of Physics, University of Texas, Austin
- Title:** “ Beating the Magnetic Barrier: Relativistically Induced Escape of Low Frequency Electromagnetic Radiation”
- Time:** Monday, 11 December, 16.00 hrs.
- Venue:** K. R. Ramanathan Auditorium, PRL

Abstract

The dispersion characteristics of an arbitrary amplitude circularly polarized electromagnetic wave, propagating in a highly (thermally and kinematically) relativistic plasma, are shown to approach those of a linear wave in an unmagnetized, non-relativistic plasma. Further aided by high relativistic temperatures, the cut-off frequency tends to become negligibly small; waves with frequencies well below the nominal plasma and the cyclotron frequencies find the plasma to be essentially transparent. This spectacular relativistic phenomenon is likely to advance our ability to understand and model the dynamics of a large class of astrophysical and laser-produced high energy density systems.

The Speaker

Professor Swadesh Mahajan is a Professor of Physics at the University of Texas at Austin(USA) and a distinguished Professor at Shiv Nadar University Delhi where he also has a role of advisor to the vice chancellor. In addition, Professor Mahajan also heads the plasma activities at ICTP, Trieste (Italy). He is a fellow of American Physical Society and The Third World Academy of Sciences (TWAS). He has an old connection with Physical Research Laboratory.

Professor Mahajan is known for his outstanding contributions in plasma physics. He is a lead author of one of the hundred most influential papers selected for the Hundred Year Commemorative Volume (1995) of The Physical Review, and Physical Review Letters. He is well-known for his work on the Global Alfvén Waves, the Magneto-Fluid relaxed states, the Reverse Dynamo Mechanism for generating flows, the novel flow-based theory of the solar wind and the solar coronal heating. He has made significant contributions in fusion plasma research, theory of relativistic quantum plasmas. He also has passion for teaching.

Tea at 15:30 hrs.

ALL ARE WELCOME

