are in the mein spiral arms of the Galaxy, 15% are in the nuclear disc and the rest are in interarm regions. The radio observations relate principally to compact H II regions which are believed to be the seats of star formation. Mezger discussed the theoretical work of Krügel et al on the evolution of compact H II regions and said that before an H II region is optically detectable with an exciting star at its centre it probably evolves from an IR source to an ionization-bounded compact H II region to a density-bounded compact H II region within the first half a million years. Mezger asserted that the birth of a massive star in a cloud signals the end of star formation in that cloud. Low mass stars always form first. Strom argued that low mass stars form elsewhere since young clusters do not generally contain them. Spitzer suggested that low mass stars may form first and then evaporate fast from a cluster which should explain their deficiency in clusters.

Strom reviewed the work on T Tauri stars. He included Herbig emission stars and Herbig-Haro objects in his review. All these objects are believed to be in the pre mainsequence phase and hold clue to the mysteries of stellar birth. Both T Tauri stars and Herbig emission stars have emission lines in their spectra, have large IR excess and show variability in emission and polarization. The lines show P Cygni profiles and are indicative of mass flow in the outer envelopes. Rydgren and collaborators have proposed models of T Tauri stars based on the idea that the emission lines are formed in a hot envelope. They have found a correlation between the youngness of a T Tauri object and the amount of mass flow. They have also observed that the mass outflow rate decreases as the stars move closer to the main sequence. Strom mentioned other models due to Cohen and workers and Gahm and his collaborators. Special reference was made to Roger Ulrich's work where he argues for mass inflow rather than mass outflow. There is a curious object namely yy Ori which shows all the T Tauri chracteristics but for the H_α line which has an inverse P Cygni profile. Herbig conjectured that the yy Ori phenomenon might be due to mass inflow. In all other examples the case of mass outflow is rather convincing.

In an interesting short report Kuhi from Berkeley showed that the atmospheric activity in T Tauri stars is correlated with their rotation in the sense that the H_α-emission objects show high rotation velocities while the non-H_α objects are slow rotators. There was quite a bit of discussion on the masses of T Tauri stars since all mass estimates are indirect. Strom said that the Herbig emission stars might be heavier than the T Tauri objects and the latter probably have masses lower than 2 $M_\odot$. In any case this was more of a speculation than hard observational fact. In another short report Taylor from Caltech discussed the observations of three condensations near θ^2 Ori which are identified in OI λ8446 photographs. These objects are supersonically moving away from θ^2 Ori at about 80 km sec^{-1}. The nature of these objects is still not known.

The theoretical work on star formation was covered in two reviews. The first by Mestel was of a general nature called the Theoretical Processes in Star Formation. He began with a discussion of Jeans' criterion and went on to the topic of magnetic fields in clouds. The problem of dissipation of angular momentum in a contracting cloud also received attention. Mestel ended his review with a description of various people's work on limits of fragmentation. Larson spoke on Models of Collapse and reviewed the work on simple spherical, axisymmetric and three-dimensional hydrodynamic collapse. He included besides his own the work by Bodenheimer and collaborators and by Appenzeller and coworkers. All these theoretical investigations involve very elaborate and complicated computational procedure. Only the results of these calculations were discussed. A curious phenomenon occurs in models of axisymmetric collapse where a ring develops and grows through accretion. The result according to Larson is highly sensitive to the distribution of angular momentum. Bodenheimer spoke on some very recent three-dimensional computations he and Black had done and said that the development of a ring was not due to imposing an axial symmetry on a collapsing cloud. In the full scale three-dimensional calculations also the ring develops and after one rotation period it tends to break up into blobs. Bodenheimer spoke of a hierarchy of ring formation and breakup and hoped that when these calculations are complete answers to such fundamental questions as how a cluster forms and how the angular momentum problem resolves may be obtained.

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WORKSHOP ON PLASMA PHYSICS

This workshop held at the Physical Research Laboratory, Ahmedabad, between November 29 and December 11, 1976 was attended by a number of participants from all over India and eight participants from the U.S.A.

Broadly speaking, this workshop covered the areas of MHD and Plasma Turbulence, Nonlinear Wave Phenomena, Computer Simulation techniques, Laser plasmas and Beam-Plasma Interactions. There were no contributed papers. Besides the review talks, sometimes two or three by one person, there were three parallle working groups every afternoon. Inspite of the ample time allocated for discussions during each lecture, very often these lively discussions had to be taken up again by the working groups.

The working group on Computer Simulation Techniques was led by Dr. D.W. Forslund, of Los Alamos Scientific Laboratory. For most of our participants, this was a new technique and they almost had to learn from a scratch. Dr. Forslund left no stones unturned to make sure that at least some of our younger participants pick up the technique to the extent that they on their own could use it once the workshop was over. In this regard, speaial mention should be made of Dr. B. N. Goswami, of PRL, Ahmedabad, who along with Dr. Forslund managed to successfully run the computer code before the workshop was over.

It was a pleasure to participate in the working group on Turbulence and non-linear wave phenomena in plasmas. Almost everyone in the group (including the students) took an active part in the discussions which were quite informal and uninhibited. These discussions were so fruitful that the third working group on Experimental Plasmas, decided to join this group for a couple of days. The major credit for this goes to Dr. D. Montgomery of University of Iowa and Dr. A. Hasegawa of Bell Laboratories. Dr. K. Lonngren, though an electrical engineer, prefers to work in theoretical nonlinear plasma physics problems ; he opted to join this group. Of the three groups, this was the biggest group ; this turned out to be so because the two groups (Turbulence and Nonlinear Wave Phenomena) which were initially supposed to be separate groups, because of the common interest of the scientists had to be combined at the last minute. Any way, the number of participatns was still not that large that it could be unmanagable.

The third working group dealt with the experimental aspects of plasmas in general and in particular with the problems on relativistic beams and ring which is one of the prospective candidates for the future nuclear fusion programme. Since, at present, in India we do not have many centres which are involved in Laboratory Plasmas, this group had the Indian participation only from PRL and from Saha Institute at Calcutta. The U.S., however, was represented by Professors I. Alexeff of University of Tennessee, C. B. Wharton of Cornell University, K. Kristiansen of Texas Tech. and R. Bengtson of University of Texas. The experimental group at PRL, which is just out of its infancy stage, benefited a great deal from the experts in this field.

Professor Montgomery did a magnificent job of reviewing the subject of Two-dimensional MHD Turbulence and Plasma Turbulence. Dr. M.R. Gupta (presently at Calcutta University) talked about the Binary Correlations and Phase Space Granulation in a turbulent plasma. The technique of self-similar-solutions is widely applied in fluid dynamics but is still not very popular in plasma physics. Professor Lonngren, by means of a number of examples from plasma physics, illustrated the use of this powerful technique of reducing the partial differential equations to the ordinary differential equations. Dr. Hasegawa, because of his clear exposition, could easily convince the audience that, contrary to the general belief, Alfven wave under certain conditions could act as a kinetic wave and gave its applications to heating of plasmas. Nonlinear Schrödinger equation which describes the envelope behaviour of nonlinear plasma waves, because of mathematical complexity, is usually discussed in one dimension. The three dimensional analogue ot this equation, for nonlinear ion acoustic and Langmuir waves was discussed by Dr. Buti of Physical Research Laboratory. She elaborated on the consequences of the multi-dimensions on the stability of the plasmas and in particular discussed the problem of collapse. Dr. Malik of Punjab University showed that the presence of some neutrals in a plasma could drastically affect the nonlinear stability of a plasma in a nonuniform magnetic field. Dr. B. Das Gupta of Saha Institute presented an alternative method of deriving the one-dimensional nonlinear Schrödinger equation for plasmas. Coming to the laset plasmas, Dr. Forslund gave a couple of lectures on nonlinear processes in laser light absorption. With the help of particle simulation techniques used by him, he very nicely illustrated the important processes involved in the absorption of intense laser light by a plasma. Dr. S. Krishan, of Indian Institute of Science, talked about the anomalous absorption and emission from laser produced plasmas whereas Dr. A.K. Sundaram of PRL discussed the effects of coherent and turbulent spectrum of waves on trapped particle modes.

On the experimental side, Professor Alexeff gave a critical survey of ion acoustic waves and Professor Bengtson, besides discussing about the plasma heating in the Texas turbulent torus, also talked about the concept of a turbulently heated reactor. The senior most participant, Professor Wharton gave a really authoritative account of plasma heating by intense relativistic electron and ion beams. Professor Kristiansen devoted one lecture in explaining the part played by lasers in the problem of heating of magnetized plasmas. In the second lecture, he completely dwelt upon the fusion reactor technology. Lastly Dr. Y.C. Saxena reviewed the activities of experimental plasma physics group of PRL.

The highlight of the workshop was the panel discussion on 'Present Status of Nuclear Fusion'. It was exceedingly encourgaing to see the lively discussions on different aspects of fusion e.g. tokomak, mirror machines, stellarator, relativistic beams and lasers. The general conclusion was that the nuclear fusion is indeed the most promising source of power in future but it should not be expected, on commercial level, before the end of the century.

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REPORT OF THE SYMPOSIUM ON RELATIVISTIC ASTROPHYSICS

The Eighth Texas Symposium on Relativistic Astrophysics jointly sponsored by the American Astronomical Society and the American Physical Society was held between December 13-17, 1976 at Boston, Massachusetts, USA. The scientific program of the symposium consisted essentially of about 50 invited critical status reports on a variety of "hot topics" in astronomy astrophysics and cosmology each followed by brief discussions for about 5 minutes. A number of informal sessions were organised in the evenings on topics of specialised interest to smaller groups of participants.

It is evident that it will not be possible to condense in a few pages all that was presented in a symposium which covered a wide spectrum of experimental and and theoretical work in relativistic astrophysics. We have therefore attempted in the following to focus attention on those aspects which according to us are new and exciting; we also confess that there is a definite