excited portable Nitrogen laser and Nd:Glass laser system capable of highly efficient operation in pulsed and Q-switched modes were fabricated and their characteristics studied. Laser damage studies were conducted on transparent, conducting films prepared by chemical vapour deposit technique.

S.p.10. ZACHARIAH, E.J—Corrugated flange technique for beam shaping of spectoral electromagnetic horn antennas—1982—Dr. K.G. Nair

The need for improved feed systems for large reflector antennas employed in Radio Astronomy and Satellite tracking spurred the interest in horn antenna research in the 1960's. The corrugated horn triggered widespread interest and enthusiasm, and a large amount of work has already been done on this type of antennas. The properties of corrugated surfaces has been investigated in detail. The idea behind this work is to merge the flange technique and the use

S.p.12 NIRMALA PAUL—Investigating characteristics of certain semi polymerized para-toluidine films

The thesis mainly deals with the study of characteristics of compound semiconductor hydride, and investigations of the eplasmopolymerized thin films of para-toluene. Compound thin films of both silver sul prepared by chemical method involving solution and a gas in a controlled fashio sulphide gas have been used to prepare sulphide solution and ammonia gas has hydridate films which are found to be a

On investigating the electrical conduct...
of corrugated surfaces together to obtain the advantages of both.

Corrugations are made on the surface of flange elements. The effect of various
corrugation parameters are studied. By varying the flange parameters, a good
amount of data is collected and analysed to ascertain the effects of corrugated
flanges. The measurements are repeated at various frequencies, in the X- and
S-bands. The following parameters of the system were studied:
(a) beam shaping
(b) gain
(c) variation of V.S.W.R.
(d) possibility of obtaining circularly polarised radiation from the flanged
horn.

A theoretical explanation to the effects of corrugated flanges is attempted on
the basis of the line-source theory. Even though this theory utilises a simplified
model for the calculation of radiation pattern, fairly good agreement between the
computer pattern and experimental results are observed. Suggestions for further
work to improve this antenna system is also included in this chapter.

The earlier part of the work described in this thesis was performed with usual
facilities in a laboratory. Precise measurements of antenna pattern were conducted
in an anechoic chamber, with automatic pattern recording facility. The design
and construction of this anechoic chamber is discussed in Appendix II.

Attempts were made to develop a microwave absorber suited for the interior
lining of microwave anechoic chambers. A natural rubber based material was
successfully developed. A report of this is given in Appendix II.