TUNNELLING IN ESAKI JUNCTIONS

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PREFACE

The invention of tunnel diode in 1958 by Leo Esaki heralded a period of intense activity by both physicists and engineers who sought to understand and realise the potentialities of this new semiconductor device. At first the potentialities appeared limitless, but gradually the various limitations of the device were exposed. Among the several disciplines where the tunnel diode has found a permanent place are the fields of electronic computers (where it is used in conjunction with transistors to provide fast switching), the heavily-doped semiconductors etc. The work described in the thesis further widens the frontier of achievements of tunnel diodes as it illustrates that the understanding of the phenomenon of tunnelling through them has led to a modification in our ideas of field emission.

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