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THE ANTHROPIC PRINCIPLE

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THE SHAPE OF THE BETA STRENGTH FUNCTION AN CONSEQUENCES FOR NUCLEAR PHYSICS AND ASTROPHYSICS

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1. INTRODUCTION

Because of its large importance for various subjects —
investigation of the beta strength function is a challenging task. The weak interaction has not only been of fundamental influence on the development of the early universe, but has

AN INTRODUCTION TO THE POSSIBLE SUBSTRUCTURE OF QUARKS AND LEPTONS*

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Abstract—After an introductory discussion of the history of substructure and of the motivations for examining the possible compositeness of quarks and leptons, experiments which could be relevant to the non-point-like nature of these fermions are reviewed. Where possible the data are used to deduce limits on the substructure energy scale.

Starting with very early ideas about quark and lepton substructure, we go on to summarise some of the specific models which have recently been proposed. They are very varied, but a general discussion is given about common topics which such models consider (e.g. the nature of the binding mechanism, the problem of the masses of the composite systems, the way in which fermion generations arise, whether to make weak intermediate bosons composite, etc.). In considering individual models, emphasis is placed on what specific predictio

We conclude that experiments in the near future could signi
which substructure can be probed. This may then provide a m
whether quarks and leptons are composite.

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* This is one of a series of articles on "Quarks and Hadronic Interactions". Reviews of quarks search experiments and of lepton pair production have already appeared in *Progress in Particle and Nuclear Physics* 7 (1981) 157 and 169 respectively.