

Papers from the Conference on the Role of Gravitation in Physics Held at the University of North Carolina, Chapel Hill, North Carolina, January 18-23, 1957

Introductory Note

THE following papers were prepared in connection with the Conference on the Role of Gravitation in Physics which was held in Chapel Hill, January 18-23, 1957. The conference was initiated by the North Carolina Project of the Institute of Field Physics, Inc., established in 1956 in the Department of Physics of the University of North Carolina, Chapel Hill. The sponsors of the conference were the International Union of Pure and Applied Science (with a financial contribution from UNESCO), the National Science Foundation, the Wright Air Development Center, and the Office of Ordnance Research. The conference was organized—with the collaboration of the Institute of Natural Science of the University of North Carolina—by the following steering committee: F. J. Belinfante, Purdue University; P. G. Bergmann, Syracuse University; B. S. DeWitt, University of North Carolina; Cecile M. DeWitt, University of North Carolina; F. J. Dyson, Institute for Advanced Study; and J. A. Wheeler, Princeton University. It is a pleasure to mention the interest shown in the conference by the officers of the University, by the Governor of the State of North Carolina, who welcomed the physicists to Chapel Hill at a luncheon in the Morehead Planetarium, and by all who have made the Chapel Hill conference possible and have helped in its organization.

The conference was planned as a working session to

discuss problems in the theory of gravitation which recently have received attention. A report of the proceedings of the conference can be obtained from Wright Air Development Center, Wright-Patterson Air Force Base, Ohio. The WADC report endeavors to record the discussions, confusions, opinions, and hopes expressed during the conference. A separate need was felt to assemble, in an issue of a scientific journal, the papers on gravitation which were ready for publication—whether or not they had been presented at the conference. Participants in the conference are grateful to the editors of *Reviews of Modern Physics* for making available the space necessary for these papers.

This collection of papers cannot strictly be considered as a review of present knowledge about gravitation. A noticeable increase of interest and activity in the theory of gravitation and related matters has taken place only recently, following a period of relative quiet. The problems attacked have not yet settled down so that they cannot be viewed with any kind of real perspective. At present the most that can be hoped for is that these papers will give a fairly reasonable picture of current activity in the field of relativity physics and stimulate greater awareness of a whole series of fundamental questions which have yet to be answered.

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