## ANALYSIS OF GRAVITATIONAL-WAVE DETECTION EXPERIMENTS\*

DOUGLAS M. EARDLEY, DAVID L. LEE, and ALAN P. LIGHTMAN

California Institute of Technology, Calif., U.S.A.

R. V. WAGONER
Stanford University, U.S.A.

and

CLIFFORD M. WILL

University of Chicago, U.S.A.

**Abstract.** The structure of weak, plane, null gravitational waves is obtained for any metric theory of gravity. In general, six polarization states are present, which reduce to three (spin  $0, \pm 2$ ) if the theory is to be quantizable. Schemes for obtaining the polarization amplitudes, as well as the direction and velocity of a wave, are presented.

<sup>\*</sup> Phys. Rev. Letters 30, 889 (1973).