

THE DETECTION FOR EXTREMELY HIGH ENERGY NEUTRINO AND THE INTERIOR STRUCTURE OF THE EARTH

N. Takahashi (1), K. Minoura (2), A. Misaki(3)

(1) Faculty of Science and Technology, Hirosaki University, (2) Graduate School of Science, Tohoku University, (3) Advanced Research Institute for Science and Engineering, Waseda University
taka@cc.hirosaki-u.ac.jp

The Earth is not opaque to high and extremely high energy neutrino (10^{12} eV to 10^{21} eV), because the rise of the charged-current and neutral-current cross sections with energy leads to decrease mean free path for neutrino which is directly connected with the density of the earth. In this paper, we investigate the relation between propagation of neutrinos with high and extremely high energy and internal structure of the earth. Also, we examine possibilities for neutrino oscillation at high and extremely high energy and its possible detection.