

POSITION CONTROL SYSTEM FOR THE NOTTE EXPERIMENT

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During the total Solar Eclipse in August 1999 in Romania, a group of Romanian and Italian institutions (e.g. Universita degli Studi, Bologna) will carry out the NOTTE Experiment (Neutrino Oscillations with Telescope during the Total Eclipse), concerning the elementary particles physics. The technical difficulty comes from the fact that the measurement system will be mounted on a supersonic aircraft that will fly within the Eclipse Shadow. The purpose of the paper is to present the active control system used to direct the measurement system to the Eclipse and to ensure the proper insulation against the perturbations induced by the aircraft. The measurement system and a digital TV camera are mounted on a large mass mobile platform with two angular degrees of freedom, driven by DC torque servo motors. Due to its large inertia, the platform's angular movements are very slow, giving to a computer the necessary time (0.2 s) to analyse the image from the TV camera and to find the position errors. These errors are used by a control algorithm that gives commands to the torque motors to correct the position of the platform. The admissible position errors are less than 10 angular minutes. Photographs of the devices will also be presented.