

NONLINEAR SWITCHING OF MICROWAVE  
PULSES IN LAYERED MEDIA  
WITH PARAELECTRIC

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S u m m a r y

Interaction of microwave electromagnetic (EM) waves with a layered structure that includes a paraelectric layer is investigated theoretically. An oblique incidence of an EM wave is considered, when the total internal reflection and the resonant transmission at several frequencies occur. It is demonstrated that this structure modulates effectively EM waves. The modulation mechanism is a change of the dielectric permittivity of a paraelectric layer due to a moderate bias electric field. The interaction of strong incident EM pulses with this structure is also considered in the case of the absence of a bias electric field. The nonlinear switching of short pulses takes place there, when both the maximum amplitude and the shape of a pulse change essentially under a small change of the amplitude of the incident pulse. This can be considered as the bistability of nonlinear pulses.