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Influence of humidity and dustiness of air and nitrogen atmoshere on the effect of shock wave splitting in plasma of glow discharge.

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Preliminary experiments were held to determine degree of influence of humidity and dustiness of air atmosphere and dustiness of nitrogen atmosphere on structure of pressure impulse distribution behind shock wave spreading across positive column of glow discharge. Experiments were held using electro discharge shock tube installation of Ioffe Physical-Technical institute. Electrical signal was obtained from piezo probe oriented towards the shock wave, the signal conforming to pressure distribution behind shock wave. A comparison of signal form in humid air atmosphere was carried out with the form in dry air atmosphere at some distances from the discharge center across the d ischarge. It showed considerable extension of signal in humid air in a 20 mm from the center of discharge (See Pic.). It is in the same distance in dry air the shock wave spitting effect has been observed. Influence of gas dustiness on the signal form was investigated only in center of discharge. Signal in air plasma without dust was not changed from signal in dusted plasma. However in nitrogen plasma without dust there was no almost shock wave splitting, while in dusted plasma some splitting effect was displayed.