High-resolution observations of solar explosive phenomena due to cometary impacts with the Sun

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It is known from our recent theoretical considerations that impacts of cometary nuclei with the Sun are accompanied by generation of strong "blast" shock waves due to "explosion" of high-velocity comet nuclei during their impulsive aerodynamic deceleration in the relatively thin sub-photosphere layer, because of preliminary aerodynamic crushing of the nuclei and considerable transversal expansion of the crushed matter within the solar chromosphere. High-resolution observations of the shock-ejected hot plumes, i.e. plasma clouds consisting of ionized photospheric and comet nuclei matter, above the solar photosphere from cometary impacts are of interest for the physics of solar flares as well as physics of comets.