

Abstract Submitted  
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**Modeling the propagation of spectacular Chelyabinsk meteor**

ALEXANDER PANIN, Utah Valley University — On March 15, 2013 about 9:20 local time a small asteroid entered Earth atmosphere at shallow angle and after  $\sim 700$  km travel exploded at about 25 km altitude near Chelyabinsk, Russian Federation with the peak brightness dwarfing Sun. The generated shock wave blasted windows in thousands of buildings injuring several hundred people (mostly by flying glass and debris) and was detected all around the globe. Numerous videos of propagating bolide were recorded by dash and security cameras. Using simple collisional model we numerically simulated the propagation of such asteroid through the atmosphere and present here the results - such as asteroid trajectory, air drag, generated thermal power, shock wave intensity, damage areas, etc. Using this model we will also discuss the possible impact of various other asteroids ranging in size from a few meters to few a kilometers.

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