Abstract Submitted
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Numerical Modeling of LCROSS experiment V.G. SULTANOV, V.V. KIM, A.V. MATVEICHEV, IPCP RAS, B.G. ZHUKOV, Ioffe PTI RAS, I.V. LOMONOSOV, IPCP RAS — The mission objectives of the Lunar Crater Observation and Sensing Satellite (LCROSS) include confirming the presence or absence of water ice in a permanently shadowed crater in the Moon's polar regions. In this research we present results of numerical modeling of forthcoming LCROSS experiment. The parallel FPIC3D gas dynamic code with implemented realistic equations of state (EOS) and constitutive relations [1] was used. New wide–range EOS for lunar ground was developed. We carried out calculations of impact of model body on the lunar surface at different angels. Situations of impact on dry and water ice–contained lunar ground were also taken into account. Modeling results are given for crater's shape and size along with amount of ejecta.

[1] V.E. Fortov, V.V. Kim, I.V. Lomonosov, A.V. Matveichev, A.V. Ostrik. Numerical modeling of hypervelocity impacts, Intern J Impact Engeneering, 33, 244-253 (2006)

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