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Mechanism of Anomalous Penetration of Shaped Charge Jet into Ceramics BORIS RUMYANTSEV, Ioffe Physical Technical Institute, St. Petersburg, VLADIMIR KLIMENKO, Institute of Chemical Physics, Moscow — Our experiment [1] shows anomalous penetration of SCJ into ceramics, namely, at some moment penetration is temporarily stopped and then continue to move. To study mechanism of this complex process we used numerical simulation by 2D-hydrocode. As a result, we have found process that plays key role in penetration braking. Jet tip destroys ceramics. Small fragments move radially to axis and blockade jet motion [2]. Intense interaction of the jet with ceramics fragments leads to dispersion, heating, melting and evaporation of jet. Leading part of the jet turns into gas and penetration is stopped. But, back part of the jet remains in solid state and continues motion. After some delay it arrives to bottom of cavern and continues penetration process.

[1] B. V. Rumyantsev, Penetration Kinetics of Cumulative Jet into Brittle Materials, ISSN 1063-7842, Technical Physics, 2009, Vol. 54, No. 6, pp. 790-794.
[2] B.V. Rumyantsev, V.Yu. Klimenko, Study of Mechanism of Penetration of Shape Charge Jet into Ceramic Armor, Inter. Conference on Shock Waves in Condensed Matter, St.Petersburg - Novgorod, Russia, 2010, pp. 210-215.

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