

Abstract Submitted
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Phase transition criterion under pressure and shear loading¹

ZHIPING TANG, YANGBO GUO, Univ. of Sci. and Tech. of China — Does the shear stress affect the transition pressure threshold? It is a question in shock dynamics field. We established the criterions for both “stress induced” and “strain induced” phase transitions under pressure and shear loading. The critical surface in the principal stress space is in-symmetric to the tension and compression and appears to be a conic surface. The effects of pressure, shear stress and temperature on the phase transition are discussed. Since the cylindrical yield surface may intersect with the conic critical surface of phase transition in the principal stress space, it means a “strain induced” phase transition might become a “stress induced” phase transition at certain condition. The prediction is in good agreement with the experiment results.

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