

Abstract Submitted  
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**Pressure in electronically excited warm dense metals<sup>1</sup>** VLADIMIR STEGAILOV, Joint Institute for High Temperatures of RAS, PETR ZHILYAEV, Moscow Institute for Physics and Technology — Non-equilibrium two-temperature warm dense metals consist of the ion subsystem that is subjected to structural transitions and involved in the mass transfer, and the electron subsystem that in various pulsed experiments absorbs energy and then evolves together with ions to equilibrium. Definition of pressure in such non-equilibrium systems causes certain controversy. In this work we make an attempt to clarify this definition that is vital for proper description of the whole relaxation process. Using the density functional theory we analyze on examples of Al and Au electronic pressure components in warm dense metals. Appealing to the Fermi gas model we elucidate a way to find a number of free delocalized electrons in warm dense metals. First results has been published in [1].

[1] Stegailov V., Zhilyaev P. Pressure in electronically excited warm dense metals // Contrib. Plasma Phys. 2015. DOI:10.1002/ctpp.201400103

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