Algorithm for calculating equation of state parameters based on the particle swarm optimization

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This work presents a numerical method for calculating the parameters of equations of state models based on particle swarm optimization [1]. The effectiveness of the method is demonstrated using six models. For these models, the parameters of the equation of state for the liquid phase of tungsten are calculated. The results obtained were verified by calculating the shock adiabats and unloading isentropes of initially porous samples of the metal under study and comparing them with the data of shock wave experiments. The areas of applicability of the considered models are indicated.

[1] Kennedy J and Eberhart R 1995 *Proc. ICNN'95 – Int. Conf. on Neural Networks, Perth, WA, Australia* **4** 1942–1948