

Abstract Submitted  
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**The  $\alpha\rho\lambda$ -model of Operational EoS** MICHAEL GRINFELD, The U.S. Army Research Laboratory — The operational EoS concept can be traced back to fundamental principles of thermodynamics. From the one hand, the operational EoS is nothing else but the complete EOS, i.e., one of the thermodynamic potentials referred to their canonically adjoint thermodynamic variables. On the other hand, the operational EoS is the operator (typically, integro-differential operator) of the measured series of experimental data. Thus, from the one hand, the operational EoS is thermodynamically consistent, and, from the other hand, it explicitly indicates the measurements required for obtaining the usable EoS. Making some plausible physical conjectures the amount of required experimental measurements can be diminished. Such conjectures can be formulated, for instance, in terms of the structure of the heat capacity function. For instance, the assumption of constant heat capacity leads to the model of the Dulong-Petit model, the assumption of that the heat capacity is function of the entropy density leads to the Mie-Gruneisen EoS. etc. In the paper, we suggest one more model, having three functional degrees of freedom, which is based on the assumption about the heat capacity function dictated by hydrocode modeling approach.

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