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Recent Developments in the EOSTA model AVRAHAM BARSHALOM[1], NRCN, POB 9001, Be'er-Sheva, Israel, JOSEPH OREG, ARTEP, Inc., Ellicott City, MD 21042 — The EOSTA model that combines the STA and Inferno models, was extended to calculate EOS and Opacities on the same footing. The Inferno section was improved and includes efficient algorithm for tracing all the shape resonances and to follow their detailed shapes. In addition higher partial waves improves the accuracy. Optimized Effective Potential (OEP) and Parametric Potential are used for transition energies. In the calculation of internal energy we apply exact exchange with appropriate reduction of the self-energy. A new method for calculating EOS that was presented recently is further developed. The lower component representation of the relativistic virial theorem yields a differential equation that is a basis for very good approximations. Excellent agreement is achieved in comparison with experiments and other calculations.

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