

Abstract Submitted
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Precise Opacities for Astrophysics (Fe and Ni) and ICF modeling MARCEL KLAPISCH, BRA, Beltsville, MD 21042, DOMINIQUE GILLES, CEA/IRFU/Sap, F91191, France, MICHEL BUSQUET, RSI, Lanham, MD 20706 — Opacities of FeIII - FeXV at Te=15-20 eV and densities 1.e16-1.e23 cm⁻³ have been computed with an improved version of the HULLAC code [1, 2]. More than 10⁹ transitions have been computed, with different ways to account for configuration interactions (CI). Spectra with CI limited to each non-relativistic configuration (CIinNRC) are compared to more extended full Relativistic CI (RCI). The effect of increasing the size of the CI basis is investigated. These comparisons enable optimizing the method for each temperature/density regime. With powerful computers, HULLAC-generated opacity databases could then be envisioned, bypassing the need for statistical approximations.

[1] D. Gilles, M. Busquet, M. Klapisch, F. Gilleron, J.C. Pain, Open M-shell Fe and Ni LTE opacity calculations with the code HULLAC-v9, High Ener. Dens. Phys., 16 (2015) 1-11.

[2] M. Klapisch, M. Busquet, A. Bar-Shalom, A New And Improved Version Of HULLAC, AIP Conference Proceedings, 926 (2007) 206-215.

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