New Generation of Los Alamos Opacity Tables


We present a new generation of Los Alamos OPLIB opacity tables\textsuperscript{1} that have been computed using the ATOMIC code\textsuperscript{2}. Our tables have been calculated for all 30 elements from hydrogen through zinc and are publicly available through our website\textsuperscript{3}. In this poster we discuss the details of the calculations that underpin the new opacity tables. We also show several recent applications of the use of our opacity tables to solar modeling and other astrophysical applications. In particular, we demonstrate that use of the new opacities improves the agreement between solar models and helioseismology, but does not fully resolve the long-standing ‘solar abundance’ problem. The Los Alamos National Laboratory is operated by Los Alamos National Security, LLC for the National Nuclear Security Administration of the U.S. Department of Energy under Contract No. DE-AC5206NA25396. \textsuperscript{1} J. Colgan et al, Astrophysical Journal, in press (2016). \textsuperscript{2} N. H. Magee et al, 14th Topical Conference on Atomic Processes in Plasmas, Eds: J. S. Cohen, S. Mazevet, and D. P. Kilcrease, (New York: AIP), pp 168; P. Hakel et al, J. Quant. Spectrosc. Rad. Transfer \textbf{99}, 265 (2006).

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Date submitted: 31 Jan 2016

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