

Abstract Submitted  
for the DAMOP16 Meeting of  
The American Physical Society

**New Generation of Los Alamos Opacity Tables** JAMES COLGAN, D. P. KILCREASE, N. H. MAGEE, M. E. SHERRILL, J. ABDALLAH, P. HAKEL, C. J. FONTES, J. A. GUZIK, K. A. MUSSACK, Los Alamos National Laboratory — We present a new generation of Los Alamos OPLIB opacity tables<sup>1</sup> that have been computed using the ATOMIC code<sup>2</sup>. Our tables have been calculated for all 30 elements from hydrogen through zinc and are publicly available through our website<sup>3</sup>. 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. <sup>1</sup> J. Colgan et al, *Astrophysical Journal*, in press (2016). <sup>2</sup> 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* **99**, 265 (2006).

James Colgan  
Los Alamos National Laboratory

Date submitted: 31 Jan 2016

Electronic form version 1.4