Abstract Submitted
for the HAW14 Meeting of
The American Physical Society

Coulomb distorted T-matrix Elements in Momentum Space[1] V. EREMENKO, Dept. of Physics & Astronomy and INPP, Ohio Univ., Athens, OH; SINP, Lomonosov Moscow State Univ., Moscow, Russia, L. HLOPHE, Dept. of Physics & Astronomy and INPP, Ohio Univ., Athens, OH, N.J. UPADHYAY, NSCL, Michigan State Univ., East Lansing, MI, CH. ELSTER, Dept. of Physics & Astronomy and INPP, Ohio Univ., Athens, OH, F.M. NUNES, NSCL, Michigan State Univ., East Lansing, MI, I.J. THOMPSON, Lawrence Livermore National Laboratory, Livermore, CA, G. ARBANAS, Reactors and Nuclear Systems Division, Oak Ridge National Laboratory, Oak Ridge, TN, J.E. ESCHER, Lawrence Livermore National Laboratory, Livermore, CA, TORUS COLLABORATION — Transfer (d,p) reactions are an important tool to study nuclear structure. These can be connected with neutron capture, a topic of great relevance to astrophysics, as well as other applications. Usually, this problem is reduced to a three-body $n+p+A$. The most advanced Faddeev-type calculations of this kind use the screened Coulomb interaction, which is inadequate for heavy systems [1]. In [2], the Faddeev-AGS formalism is developed in the Coulomb basis, without the need to introduce screening. This Coulomb basis requires the half-shell T-matrix elements (nuclear form factor) folded with the Coulomb wavefunction $\psi^C_{q,l}(p)$. Handling the $\psi^C_{q,l}(p)$ and the computation of the integral, require care. The integral regularization technique was presented in [2]. We generalize that regularization procedure for complex form factors. The resulting form factors will be presented and discussed [3]. [1] PRC 84, 034607 (2011). [2] PRC 86, 034001 (2012). [3] PRC in press.

[1]Supported by the U.S. Department of Energy (TORUS Collaboration).

Vasily Eremenko
Dept. of Physics & Astronomy and INPP, Ohio Univ., Athens, OH; SINP,
Lomonosov Moscow State Univ., Moscow, Russia

Date submitted: 30 Jun 2014 Electronic form version 1.4