

Abstract Submitted  
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**3D Time-Dependent Density Functional Theory for Superfluid Nuclear Systems**<sup>1</sup> AUREL BULGAC, University of Washington, PIOTR MAGIERSKI, Warsaw University, KENNETH ROCHE, Oak Ridge National Laboratory, IONEL STETCU, University of Washington — We have recently formulated a full 3D Time-Dependent version of the Density Functional Theory for superfluid nuclear systems and implemented it as a highly efficient parallelized code on leadership class supercomputers, and we refer to it as the Time-Dependent Superfluid Local Density Approximation (TD-SLDA). TD-SLDA can be used in particular to calculate the linear response to an arbitrary external probe of any nucleus, without any symmetry restrictions and in a fully selfconsistent manner and with a correct treatment of all spurious modes. As one of the first applications of TD-SLDA we study the response of a nucleus to a Coulomb field generated by a relativistic projectile.

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