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Lorena Aguirre Salazar and **Stan Alama*** (alama@mcmaster.ca), Hamilton, Ontario L8S 4K1, Canada, and **Lia Bronsard**. *Convergence of the TFDW Energy to the Liquid Drop Model*.

We consider two nonlocal variational models arising in physical contexts. The first is the Thomas-Fermi-Dirac-von Weizsacker (TFDW) model, introduced in the study of ionization of atoms and molecules, and the second is the liquid drop model with external potential, proposed by Gamow in the context of nuclear structure. It has been observed that the two models exhibit many of the same properties, especially in regard to the existence and nonexistence of minimizers. We show that, under a sharp interface scaling of the coefficients, the TFDW energy with constrained mass Gamma-converges to the liquid drop model, for a general class of external potentials. Finally, we present some consequences for global minimization of each model. (Received August 22, 2021)