Title: **Exchange-Correlation functionals inspired to the exact strong-coupling limit of density functional theory**

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ABSTRACT:

The exact strong-coupling limit of density functional theory (DFT) reveals a mathematical structure very different from the one of traditional approximations for the exchange-correlation functionals. Instead of the usual local density, local density gradients, Kohn-Sham orbitals, and related quantities, in this limit we observe the appearance of certain integrals of the density. I will illustrate some approximations that we have proposed inspired to this mathematical structure. These approximations retain some of the non-locality of the exact strong-coupling limit of DFT while being computationally affordable.