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**Atanas Stefanov\*** ([stefanov@ku.edu](mailto:stefanov@ku.edu)). *On the ground states for the generalized Hartree problem.*

We consider standing wave solutions  $e^{i\omega t}\Phi(x)$  of the generalized Hartree problem - with fractional dispersion and arbitrary power non-linearity, in any dimension  $d \geq 1$ . We establish the existence of ground states, under appropriate constraints on the parameters. The uniqueness of such ground states is an outstanding (and exciting) open problem in the field, with only a few results known in the classical cases (standard Laplacian,  $p = 2$  and  $d = 3, 4, 5$ ), most notably by Lieb'77 and recently by Ma-Zhao'10 and Wang'15,16. Stability of such solutions (without knowing uniqueness) is an interesting open problem as well. We report on a new development in this direction. (Received September 13, 2016)