A universal molecular description for the spectra of bosons and fermions in the lowest Landau level[1] CONSTANTINE YANNOULEAS, UZI LANDMAN, Georgia Institute of Technology — We show that both the *yrast* and *excited* states in the LLL spectra of small systems can be expressed as linear superpositions of appropriate rovibrational molecular trial functions, akin to the rotating-electron-molecule functions introduced earlier.[2] Thus the nature of strong correlations in the lowest Landau level reflects the spontaneous emergence of intrinsic point-group symmetries associated with rotations and vibrations of molecules of localized particles arranged in concentric polygonal-ring configurations. The present molecular picture is valid for both bosons and fermions. We stress its validity and superiority for *low* (as well as high) angular momenta, where "quantum-fluid" trial functions of a markedly different nature (including Laughlin, composite-fermion, and Pfaffian ones) have been assumed[3] to apply.

[2]C. Yannouleas and U. Landman, Phys. Rev. B **66**, 115315 (2002); Rep. Prog. Phys. **70**, 2067 (2007).
[3]R.B. Laughlin, Phys. Rev. Lett. 50, 1395 (1983); J.K. Jain, *Composite Fermions* (Cambridge University Press, 2007); N.R. Cooper, arXiv:0810.4398v1.

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