

Abstract Submitted  
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**Quantum Monte Carlo study of few-electron concentric double quantum rings** LEONARDO COLLETTI, Istituto Nazionale di Fisica Nucleare, Italy, FRANCESC MALET, MARTI PI, Universitat de Barcelona, Spain, FRANCESCO PEDERIVA, Università di Trento, Italy — We consider few-electron concentric double quantum rings with parabolic confining potential and compare the ground-state energies calculated by exact diagonalization of the Hamiltonian, accurate quantum Monte Carlo and local spin-density functional approaches. Electronic localization in one of the rings and the formation of rotating Wigner molecules is shown respectively from the one-body and the two-body density operators. As the confinement strength is finely increased, the circularly-symmetric electron density exhibits a radial crossover from the outer ring to the inner one without altering the angular character of the system.

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