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Correlation-hole induced scillatory pfaffian states in even-denominator fractional quantum Hall effects YUAN-MING LU, Boston College, YUE YU, Institute of Theoretical Physics, Chinese Academy of Sciences, ZIJIANG WANG, Boston College — A theory is developed for the paired even-denominator fractional quantum Hall states in the lowest Landau level. We show that electrons bind to quantized vortices to form composite fermions, interacting through an exact instantaneous interaction that favors chiral p-wave pairing. There are two canonically dual pairing gap functions related by the bosonic Laughlin wavefunction (Jastraw factor) due to the correlation holes. Remarkably, we find a new ground state lower in energy than the Moore-Read pfaffian for intermediate Coulomb interactions: a pfaffian with an oscillatory pairing function. We explore the unusual features and experimental implications of such a state. Connections to recent experiments are also discussed.

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