General trial wave functions for a three body interaction SREE-
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stitute of Physics, University of Pecs, Hungary, JAINENDRA JAIN, The Penn-
sylvania State University — The Pfaffian wave function, which is a candidate for
the 5/2 FQHE state, is the exact ground state of a short range three body model
interaction, but little is known about the solutions of this model at other filling
factors. Our starting point is the observation that the Pfaffian can be obtained by
fully anti-symmetrizing a bilayer wave function of Halperin. A more general class
of composite fermion wave functions for bilayer systems was constructed by Scarola
and Jain. We find that, upon full antisymmetrization, these wave function provide
a decent approximation to the low energy solutions of the three body model inter-
action at filling factors other than 1/2. The charged and neutral excitations of the
full state are naturally constructed by creating excitations in one or both "layers."
We also investigate how well the ground and excited state wave functions work for
the Coulomb interaction, both in the lowest and the second Landau levels. Systems
with up to 18 particles are studied by a combination of exact diagonalization and
Monte Carlo method.

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