

Abstract Submitted  
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**5/2 FQHE without assuming pairing** JAINENDRA JAIN, CSABA TÓKE, Penn State University — We investigate the fractional quantum Hall effect at filling factor  $5/2$  without assuming pairing at the outset; this provides an alternative starting point to the Pfaffian wave function of Moore and Read. The model of noninteracting composite fermions produces a gapless Fermi sea at  $5/2$ . We demonstrate that the residual interaction between composite fermions opens a gap and establishes incompressibility at this filling factor. This approach has the advantage of being amenable to systematic perturbative improvements, and produces ground as well as excited states. It also shows that the  $5/2$  state can be obtained from the composite-fermion Fermi sea by a slight reorganization of composite fermions near the Fermi energy. We will comment on the quantitative accuracy of this approach, as well as its relation to other approaches.

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