

Anyons in the average-field approximation

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Abstract: Anyons are effective quantum quasi-particles which have properties intermediate to bosons and fermions. They may arise in quantum systems confined to lower-dimensional geometries and subject to strong magnetic fields and interactions, such as in the fractional quantum Hall effect. Their properties are defined by the attachment of magnetic flux to each particle, and in a particular dense limit this difficult many-body problem simplifies to an effective one-body description involving a self-interacting functional for the average magnetic field.

I will review analytical and numerical results concerning this model, obtained in collaboration with Michele Correggi, Romain Duboscq and Nicolas Rougerie.