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Supersymmetric extension of the quantum Hall effect

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We overview the developments of a supersymmetric extension of the quantum Hall effect. The SUSY quantum Hall effect is constructed on supersphere in a supermonopole background. The underlying geometry is given by the non-anti-commutative geometry. We derive a SUSY extension of the Laughlin wavefunction and discuss its basic properties. Interestingly, the original Laughlin state and the Moore-Read state appear in two extremal limits of the SUSY Laughlin wavefunction. We also construct the corresponding Chern-Simons effective field theory. Recent work about application to the AKLT spin model is briefly reported.