

APCTP Workshop: Field Theory and Geometry in Fractional Quantum Hall and Flat Band Systems

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Magnetic defects and counting degrees of freedom

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Conformal field theories are wonderful universal objects that can be used to describe the deep infrared of strongly coupled systems. However, CFTs describe systems preserving all translations, rotations and boosts. If we consider systems with extended defects, in the deep infrared we find a more complicated system known as a defect CFT. These host an even richer structure than standard CFTs and are often quantified with new universal numbers, including new critical exponents and anomaly coefficients. In this talk we will review a specific class of “magnetic defects” made by considering an infinitely long and thin solenoid. We measure new universal quantities and discuss the nuances of monotonicity in defect CFTs. Due to the complicated nature of the systems in question, we often resort to tools from high energy theory, such as supersymmetry.

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