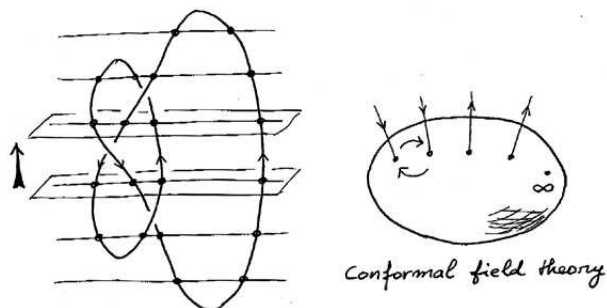


Constructing knot invariants using conformal field theory

Toshitake Kohno Principal Investigator of IPMU

Knots are important objects in topology. By decomposing a knot diagram into the birth, death, and braiding process of points in a plane and applying conformal field theory, we obtain a general framework for constructing knot invariants. The Jones polynomial, which satisfies the relationship below with respect to local modifications of knots, is derived in this manner.



The Jones polynomial satisfies :

$$\frac{1}{t} V(\text{crossing}) - t V(\text{crossing}) = \left(\sqrt{t} - \frac{1}{\sqrt{t}} \right) V(\text{two loops})$$