Thm: (Kuperberg) A virtual knot diagram corresponds to a unique minimal surface with an immersed knot diagram.

Cor: A virtual knot diagram with a unique minimal surface that has genus greater than zero is non−classical and non−trivial.

Problem: Determining when a surface with an immersed knot diagram is minimal.

Solution: Use the bracket polynomial to produce a collection of states. Each state consists of a set of simple closed curves in the surface. Using either isotopy classes or homology classes, we deteremine if a cancellation curve exists. If no cancellation curve exists, then the surface is minimal.