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**Jennifer M. Franko\*** ([jefranko@indiana.edu](mailto:jefranko@indiana.edu)), Mathematics Department, Indiana University, Rawles Hall, Bloomington, IN 47405. *Representations of the Braid Group via the Yang Baxter Equation*. Preliminary report.

In a Topological Quantum Computer, representations of the braid group can be used to describe the actions of the quantum bits a.k.a qubits. Any invertible matrix which satisfies the Yang Baxter Equation can be used to obtain representations of the braid group. The goal of the poster is to study representations arising from unitary solutions to the Yang Baxter Equation where the vector space is 2 dimensional. Since the closure of a braid forms a link or a knot, we also consider what invariants these representations might yield. (Received September 22, 2006)