1095-57-151   **Jozef H. Przytycki*** (`przytyck@gwu.edu`), Department of Mathematics, George Washington University, Washington, DC 20 052. *Homology of Yang-Baxter operators.*

I describe my recent work on homology of Yang Baxter operations and its potential connection to Khovanov homology of some families of links. The logical line is as follows: Jones polynomial and Homflypt polynomial can be described using the well-understood Yang-Baxter operators (as shown by Jones and Turaev). Khovanov homology categorifies the Jones polynomial (or the Kauffman bracket polynomial), and Khovanov-Rozansky homology categorifies the Homflypt polynomial. The Yang-Baxter equation can be thought of as a generalization of self-distributivity: that is, a binary operation $* : X \times X \to X$, is lifted to the linear operator $Y : RX \otimes RX \to RX$, where $R(a, b) = (b, a * b))$; if $*$ is right self-distributive then R satisfies the Yang-Baxter equation. Distributive homology (including rack homology and quandle homology) can be generalized to homology of set-theoretical Yang-Baxter operator (as showed by Carter, Elhamdadi, and Saito). Eiserman and Lebed considered homology of more general Yang-Baxter operators. Furthermore, Hochschild homology can be described by a graphical calculus in a similar way as distributive homology. Khovanov homology and Hochschild homology are closely related. (Received September 07, 2013)