1023-20-1325   **Kevin Knudson*** (`knudson@math.msstate.edu`), Department of Mathematics and Statistics, Mississippi State University, Mississippi State, MS 39762. *On the kernel of the Gassner representation.*

Denote by P_n the pure braid group on n strings. The (unreduced) Gassner representation is a map $\gamma_n : P_n \to GL_n(\mathbb{Z}[t_1^{\pm 1}, \ldots, t_n^{\pm 1}])$. This map is faithful when $n = 3$, but injectivity is unknown for all $n \geq 4$. In this talk, I will study this question by restricting to an equivalent problem involving a certain free subgroup and then passing to a Lie algebra of graded quotients. Bounds on the kernel are obtained. (Received September 25, 2006)