1077-20-259   **Emille Davie Lawrence*** (`edlawrence@usfca.edu`), University of San Francisco, Department of Mathematics, 2130 Fulton St., San Francisco, CA 94117-1080. *A new distinguished form for 3-braids and its applications to the σ-order on B_3.* Preliminary report.

The braid groups have been an interesting field of study in low-dimensional topology and algebra since Emil Artin introduced the notion of a braid in the 1920s. Over the years it has been discovered that the braid groups play a useful role in knot theory, robotics, theoretical physics, and a variety of other areas. In 1992 Patrick Dehornoy proved that the braid groups were left-orderable, however he used methods that were foreign to most topologists. Soon after, a 5-author paper gave a completely topological proof to braid group orderability, and furthermore, they proved that this order was equivalent to Dehornoy's. We will give a brief introduction to the σ-order on B_n. He will also show how a new distinguished form for 3-braids allows us to determine positivity in the σ-order using left handle reduction. (Received August 16, 2011)