DALE ROLFSEN, University of British Columbia, Vancouver, Canada V6T 1Z2
Braid groups and the space of orderings

P. Dehornoy showed in the 1990's that the braid groups are left-orderable—that is, its elements can be totally ordered by an ordering which is preserved by left multiplication. More recently, Sikora introduced a natural topology on the set of all left-orderings of a group G, forming a space called $\mathrm{LO}(G)$, which is compact and totally disconnected. He showed that in many cases, $\mathrm{LO}(G)$ is homeomorphic with the Cantor set. It turns out that the braid groups B_n have an interesting space of orderings, in that $\mathrm{LO}(B_n)$ is NOT a Cantor set. I will discuss the isolated orderings of B_n discovered by Dubrovin and Dubrovina, and show that the Dehornoy ordering is not isolated in $\mathrm{LO}(B_n)$. Moreover, I will show that $\mathrm{LO}(B_n)$ contains a Cantor set of orderings, all of which well-order the monoid of Garside positive braids.

This is joint work with Adam Clay.