1152-55-113 **Jesus Gonzalez*** (jechucho@gmail.com), Ave. IPN 2508, San Pedro Zacatenco, Gustavo A. Madero, 07360 Mexico DF, Mexico, **Jose Luis Leon-Medina**, , Mexico, and **Christopher J. Roque**, , Mexico. *Motion planning with controlled collisions.*

We compute the Lusternik-Schnirelmann category (LS-cat) and all the higher topological complexities of the "no-k-equal" configuration space on n particles over the real line. This yields in particular (with $k = 3$) the LS-cat and the higher topological complexities of Khovanov's group PP_n of pure planar braids on n strands, which is a real analogue of Artin's classical pure braid group. We describe optimal motion planners for PP_n provided n is small. (Received August 28, 2019)