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James Davis, Patricia Hersh* (plhersh@ncsu.edu) and **Ezra Miller**. *Fibers of maps to totally nonnegative spaces.*

Sergey Fomin and Michael Shapiro proved that the totally nonnegative real part of the unipotent radical of a Borel in a semisimple, simply connected algebraic group has a cell decomposition with Bruhat order as its poset of closure relations, and they conjectured that (after deconing) this was a regular CW complex homeomorphic to a closed ball. Much of the interest in this space comes from its interpretation as the image of a map related to Lusztig's theory of canonical bases. I will discuss new joint work with Jim Davis and Ezra Miller regarding the fibers of this map. In particular, we prove that each fiber admits a cell decomposition and conjecture that this is a regular CW decomposition. We also show that its face poset is that of a known regular CW complex, namely the interior dual block complex of a subword complex. (Received September 07, 2019)