

## **Algebraic Geometry Seminar**

### *Regular cell complexes in total positivity*

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**Abstract:** Sergey Fomin and Michael Shapiro conjectured that certain topological spaces of totally nonnegative real matrices stratified according to which minors are positive and which are 0 are regular CW complexes homeomorphic to closed balls having the (lower) intervals of Bruhat order as their posets of closure relations. We will survey this area, including connections to Lusztig's theory of canonical bases, to electrical networks, and to cluster algebras, and we will discuss how combinatorics and topology were combined in somewhat non-standard ways to obtain a proof of this conjecture. This talk will not assume familiarity with these areas.

Monday, March 7 at 2:00 PM in SEO 1227