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*(n, n) Springer fibers and their cell decompositions.* Preliminary report.

$(n, n)$  Springer fibers have remarkable and unusual geometric features: they have a Catalan number's worth of components, and each component is not only smooth but an iterated tower of  $\mathbb{P}^1$ -bundles. One combinatorial index set for the components is the collection of noncrossing matchings with  $n$  arcs, which also can be thought of as a basis for the Temperley-Lieb algebra. These fertile connections between geometry, combinatorics, and knot theory mean that many mathematicians have investigated various aspects of these Springer fibers, including Fung, Khovanov, Fresse, Russell, Stroppel, Kamnitzer, and others. We show an explicit bijection between the cells in a paving of the  $(n, n)$  Springer fibers and the combinatorial index set of *standard dotted* noncrossing matchings, and describe some combinatorial results describing the closures of these cells. This work is joint with Talia Goldwasser and Garcia Sun. (Received September 11, 2019)