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Laura G. Brestensky* (lgbreste@ncsu.edu) and **Nathan Reading**. *Affine Coxeter Groups and Non-Crossing Partitions of an Annulus.*

In a finite Coxeter group W , there is a notion of a lattice of non-crossing partitions given by the interval $[1, c]_T$ in absolute order. However, when W is infinite, $[1, c]_T$ may not be a lattice. In this talk, we will model $[1, c]_T$ as non-crossing partitions of an annulus for affine type \tilde{A}_n . Namely, we will define non-crossing partitions of an annulus (using a narrow definition) and show that the poset of these non-crossing partitions is isomorphic to $[1, c]_T$. We will also define a supergroup of W and show $[1, c]$ in this supergroup is isomorphic to a poset of non-crossing partitions of an annulus using a boarder definition; in fact, we will show that this poset is a lattice.

This work is part of a project to create combinatorial models for McCammond and Sulway's results on Euclidean Artin groups. The combinatorial model adds new insight to the McCammond-Sulway results in type \tilde{A} . (Received September 13, 2021)