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**Linhui Shen\*** ([linhui.shen@yale.edu](mailto:linhui.shen@yale.edu)). *Stasheff polytopes and the coordinate ring of the cluster  $\mathcal{X}$ -variety of type  $A_n$ .*

We define Stasheff polytopes in the space of tropical points of cluster  $\mathcal{A}$ -varieties. We study the supports of products of elements of canonical bases for cluster  $\mathcal{X}$ -varieties. We prove that, for the cluster  $\mathcal{X}$ -variety of type  $A_n$ , such supports are Stasheff polytopes. (Received September 20, 2011)