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*Higher Dimers, Webs and Grassmannian Cluster Algebras*

In this talk, we will discuss joint work with Moriah Elkin and Gregg Musiker about a combinatorial model for certain Grassmannian cluster algebras. The Grassmannian of  $k$ -planes in  $\mathbb{C}^n$ ,  $\text{Gr}(k, n)$ , has a cluster structure that is not well-understood for  $k > 2$ . In these algebras, Plücker coordinates  $\Delta_I$  give us a subset of the cluster variables and have lovely combinatorial descriptions. However, most cluster variables are more complicated expressions in Plücker coordinates and lack such a combinatorial description. In our work, we give a graph theoretic interpretation for the Laurent expansion of cluster variables of low degree in terms of higher dimer models. This work employs  $SL_k$ -web combinatorics and we conjecture these webs are the key ingredient to understanding Grassmannian cluster algebras. If time permits, I would like to also pose an open problem I hope to work on relating our dimer combinatorics to the categorification of Grassmannian cluster algebras.