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Fatemeh Mohammadi* (fatemeh.mohammadi@ugent.be), Ghent University, Department of Mathematics: Algebra & Geometry, Ghent, Belgium. *Triangulations of Amplituhedron: a fiber-based approach beyond polytopes.*

A tree amplituhedron is a geometric object generalizing the cyclic polytope and the positive Grassmannian. It was introduced by Arkani-Hamed and Trnka to give a geometric basis for the computation of scattering amplitudes in N=4 supersymmetric Yang-Mills theory. In particular, the physical computation of scattering amplitudes is reduced to finding the triangulations of the amplituhedron. While triangulations of polytopes are encoded in their so-called secondary and fiber polytopes, the study of triangulations of objects beyond polytopes is very complicated. Our aim is to study the notion of finer amplituhedron. In this talk, I will not assume any prior knowledge on amplituhedron theory or fiber geometry. I will first give an overview of the amplituhedron theory. Then, I will explain how to find its triangulations in specific cases. This is based on a recent work with Monin and Parisi.

References

- [1] Nima Arkani-Hamed and Jaroslav Trnka. “The amplituhedron.” *Journal of High Energy Physics* (2014).
- [2] Fatemeh Mohammadi, Leonid Monin and Matteo Parisi. “Triangulations and Canonical Forms of Amplituhedra: a fiber-based approach beyond polytopes.” arXiv preprint [arXiv:2010.07254](https://arxiv.org/abs/2010.07254) (2020).

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