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# Inferring the composition of Ultra High Energy Cosmic Rays

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In this talk, I will present a novel method for inferring the mass composition of Ultra High Energy Cosmic Rays (UHECR) from the electromagnetic profile of their air showers. By capturing the main features of the profile in few moments of the distribution, we can use nested sampling algorithms to probe the full shape of the likelihood. Furthermore, I will explore opportunities for enhancing the statistical significance of this dataset by exploiting its correlation with other shower observables.

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