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Type : **Poster**

The Polarization and Magnetic Field of the Radio Arc as Observed by ALMA at 100 GHz

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The unique Galactic Center non-thermal filaments (NTFs) have been a focus of investigations for over 40 years. The most prominent manifestation of the NTFs is a bundle of parallel filaments known as the Radio Arc. Radio polarimetric observations made with the Very Large Array (VLA) at 10 GHz have revealed an alternating magnetic field pattern in the Radio Arc that could either be a result of multiple field systems being encountered along the line of sight or an intrinsic feature of the Radio Arc. These VLA observations were not able to distinguish between these possibilities due to the large rotation measures encountered towards the source. We present ALMA 100 GHz observations of the Radio Arc that are not impacted by significant Faraday effects. The observations reported here represent both the first time that ALMA has been used to study the NTFs and the first time 100 GHz polarimetric observations have been conducted on the Radio Arc. We find a uniformly rotated magnetic field with respect to the NTF filament orientation, with the angle of rotation being constant along the length of each filament. However, we find a systematically different magnetic field orientation in different Radio Arc filaments. We use this field pattern to update our understanding of the line-of-sight structures local to the Radio Arc. We find that the magnetic field inferred from our ALMA observations is likely a result either of confusion from multiple magnetic field systems or because the polarization is centrally concentrated within the NTF filaments.

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Yes

What is your career level?

MSc

Which keyword describes the area of focus of this talk?

Other

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