

**NRAO/Socorro Colloquium Series****Elizabeth Mills***NRAO*

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**The Environment of an Unusual Starless Galactic Center Molecular Cloud**

## Abstract

The giant molecular cloud G0.253+0.016 or "The Brick" is a massive ( $M \sim 10^5$  solar masses) cloud in the Galactic center. Its apparent lack of star formation given its large mass makes it unique in our Galaxy, and as such it has been the subject of more than a dozen papers in just the last 3 years. The properties of this cloud are being used to understand everything from the quiescent initial stages of massive star formation to the overall evolution and orbit of clouds in the entire Galactic center. However, its physical conditions and environment are still poorly constrained. I will present recent VLA observations of this cloud that provide new measurements of its temperature structure and kinematics. The results of these observations also include the detection of an unprecedented number of shock-excited methanol masers, and the first detection of weak, extended continuum emission, apparently due to the external ionization of the cloud. Despite the detection of both masers and continuum emission, we find no new evidence for ongoing star formation in this cloud. However, we do find tantalizing evidence for an overlooked interaction between this cloud and a nearby supernova remnant from the cloud's morphology, kinematics, and the inhomogeneous distribution of the shock-excited masers. I will conclude with a discussion of how it may be possible to distinguish between scenarios for quiescent and interaction-driven evolution of this and other clouds in the Galactic center.

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**February 27, 2015****11:00 am****Array Operations Center Auditorium****All NRAO employees are invited to attend via video, available in Charlottesville Auditorium, Green Bank Auditorium, and VLA Video Conference Room.**Local Host: Minnie Mao

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