Abstract Submitted
for the PSF16 Meeting of
The American Physical Society

Angular Size of 2cm Formaldehyde Emission in NGC 7538 ONIC ISLAM SHUVO, ESTEBAN D. ARAYA, Department of Physics, Western Illinois University. — We present results of a work focused on measuring the angular size of 2 cm H_2CO emission in the high-mass star forming region NGC 7538 IRS 1. Our work is based on cross-scan mapping observations conducted with the NRAO 100m Green Bank Telescope, which were reported by Yuan, Araya and collaborators in 2011. The 2 cm H_2CO spectra show absorption superimposed with emission lines, thus, the emission and absorption profiles were fitted simultaneously to characterize the emission lines, and thus to measure the angular extent of the emitting cloud. We used East-West and North-South pointing positions of the cross-scan map to estimate the angular size of the source. Assuming Gaussian distributions on both directions, we found the deconvolved size (at half maximum) of the 2 cm emission equal to 52"$\pm$12". The angular size is important to determine the brightness temperature of the emission, which is needed to investigate the physical conditions of the gas based on a radiative transfer analysis of the 2 cm and 1 cm H_2CO lines.

Onic Islam Shuvo
Department of Physics, Western Illinois University.

Date submitted: 16 Sep 2016 Electronic form version 1.4