$H_2^{13}CS$, core, $T_{rot} = 50.0 \text{ K}$, $N_{tot} = 7.9e + 12 \text{ cm}^{-2}$, $v_{cen} = 40.0 \text{ km s}^{-1}$, $v_{disp} = 1.5 \text{ km s}^{-1}$ 0.15 $E_{II} = 9.51 \text{ K}$ $E_{IJ} = 28.82 \text{ K}$ $E_U = 22.85 \text{ K}$ $E_{II} = 22.85 \text{ K}$ 0.20 0.2 $\log_{10}(A_{i,j}) = -4.88$ $\log_{10}(A_{i,i}) = -4.91$ $\log_{10}(A_{i,i}) = -4.91$ $\log_{10}(A_{i,j}) = -4.54$ 0.10 0.10 0.15 -0.1 0.10 0.05 0.05 0.05 0.0 0.00 0.00 0.00 -0.1-0.05-0.05-0.05-0.10-0.2 -0.10-0.15-0.10100.52 97.64 99.05 99.06 99.07 99.08 100.51 100.52 100.53 100.54 100.51 100.53 100.54 130.14 130.15 130.16 130.17 130.18 0.2 0.20 -0.15 0.15 0.10 0.05 0.1 0.10 0.05 0.05 0.00 0.0 0.00 0.00 -0.05-0.05-0.1-0.05-0.10-0.10 $E_U = 68.67 \text{ K}$ $E_U = 68.67 \text{ K}$ $E_U = 29.29 \text{ K}$ $E_U = 69.43 \text{ K}$ -0.10-0.2-0.15 $\log_{10}(A_{i,i}) = -4.61$ $\log_{10}(A_{i,j}) = -4.61$ $\log_{10}(A_{i,i}) = -4.5$ $\log_{10}(A_{i,j}) = -3.59$ -0.15 -132.10 132.11 132.12 132.13 132.14 132.07 132.08 132.09 132.10 132.11 132.12 134.01 134.02 134.03 134.04 134.05 260.24 260.26 260.28 260.30 260.32 0.20 $E_U = 71.10 \text{ K}$ $\log_{10}(A_{i,i}) = -3.55$ 0.10 0.15 0.05 0.10 0.00 0.05 0.00 -0.05-0.05-0.10

 $E_U = 71.10 \text{ K}$

267.96 2679984288.001 GHz 102 268.04 268.06

 $\log_{10}(A_{i,i}) = -3.55$

-0.15

0.15

0.10

0.05

0.00

-0.05

-0.10

-0.15

-0.20

0.20

0.15

0.10

0.05

0.00

-0.05

-0.10

-0.15

0.20

0.15

0.10

0.05

0.00

-0.05

-0.10

-0.15

Brightness temperature [K]

97.61

 $E_{U} = 15.85 \text{ K}$

97.62

132.05 132.06 132.07 132.08 132.09

263.94 263.96 263.98 264.00 264.02

 $E_U = 22.58 \text{ K}$

 $\log_{10}(A_{i,i}) = -4.95$

97.63

 $E_U = 57.04 \text{ K}$

 $\log_{10}(A_{i,i}) = -3.56$

-0.10

-0.15

267.96 267.98 268.00 268.02 268.04 268.06