Project APEX
(Atacama Pathfinder EXperiment)

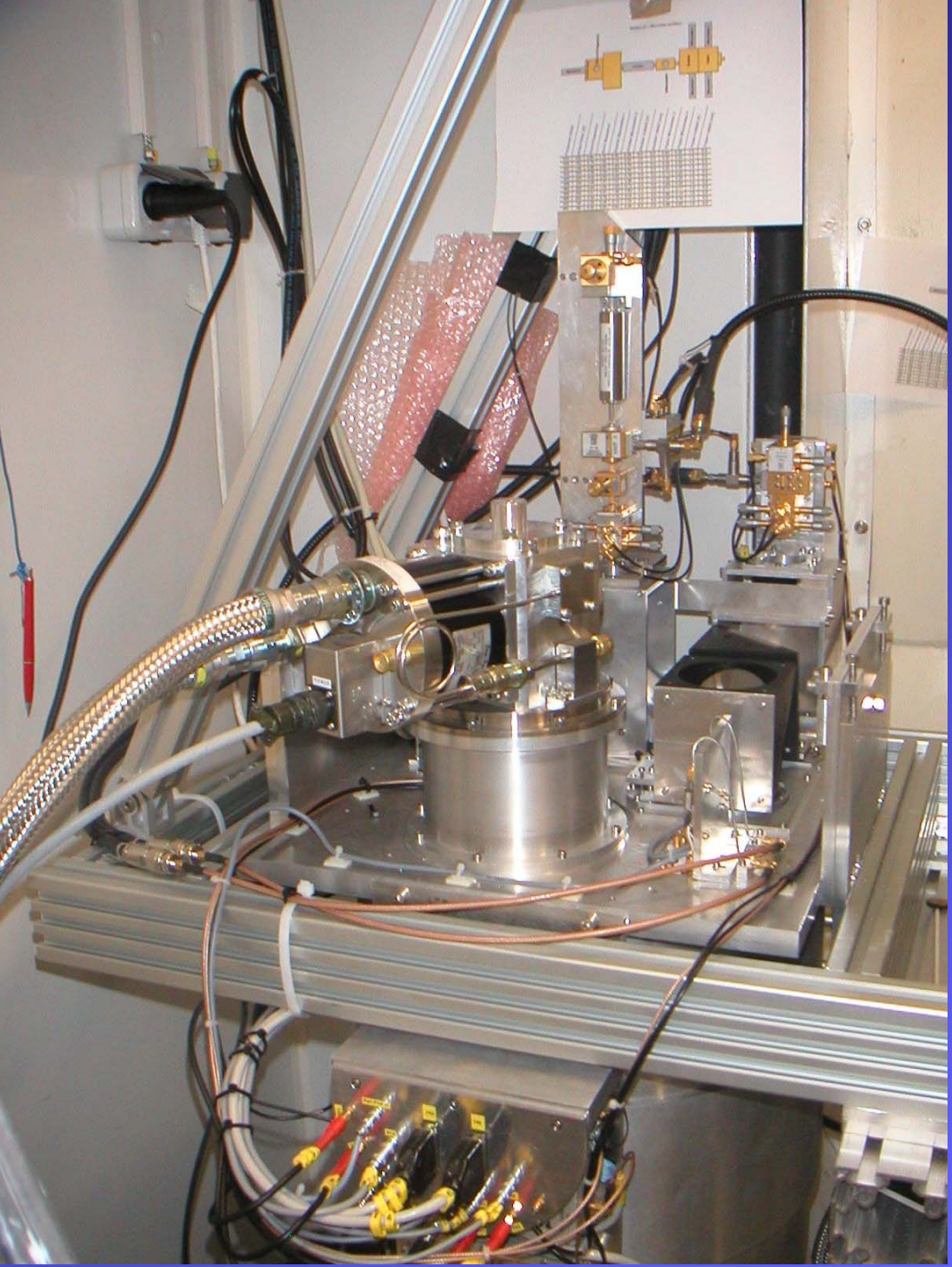
- Submillimeter Telescope at best accessible site on Earth: Llano de Chajnantor in Chile (5000 m)
- Antenna modified copy of US ALMA prototype
- Responsibility for construction by Max-Planck-Institut für Radioastronomie, Bonn (Infrastructure help from ESO)
  - Principal Investigator: **Karl Menten**
  - Project Manager: **Rolf Güsten**
  - Project Scientist: **Peter Schilke**
- Partners:
  - MPIfR: 50 %
  - European Southern Observatory (ESO): 27%
  - Onsala Space Observatory, Sweden (OSO) : 23%

Instrumentation

- Bolometers
  - LABOCA: 300 Element array at 870 μm (MPIfR)
  - 37 Element 350 μm (MPIfR)
  - 300 Element 2mm SZ instrument (PI Berkeley)
- Heterodyne
  - Facility single or dual pixel receivers from 210 to 500 GHz, and a THz channel (Onsala)
  - CHAMP+: 7 pixel 650 GHz/7 pixel 850 GHz (PI MPIfR)
  - THz receivers (PI KOSMA and CfA)
- 183 GHz water vapor radiometer for amplitude calibration

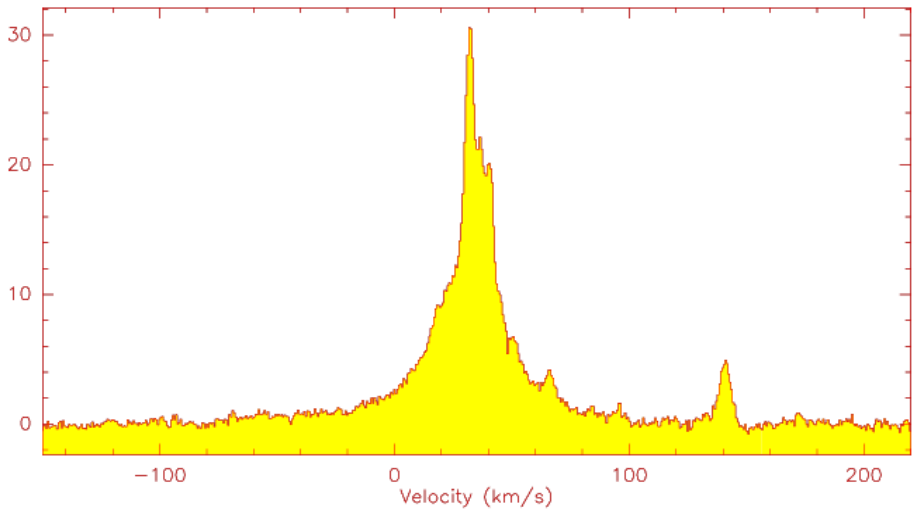
Surface setting after holography

Nasmyth cabins and instrument containers



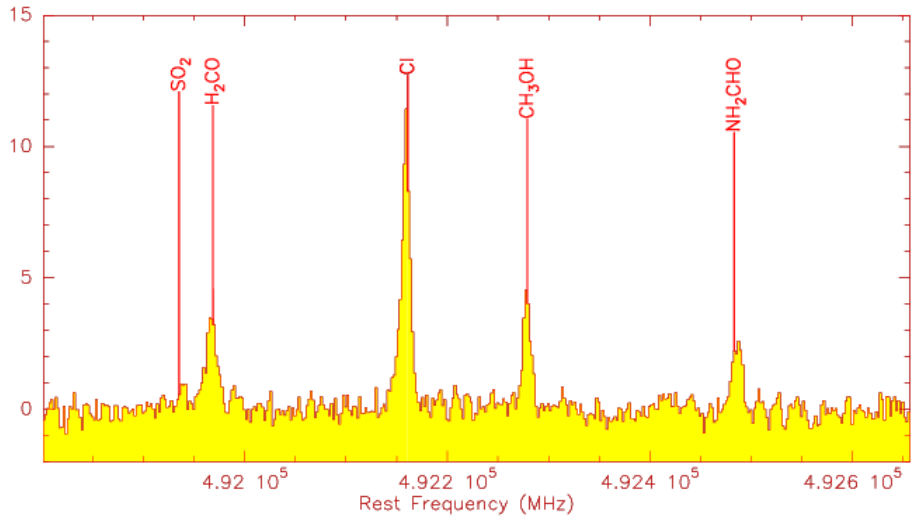
FLASH: MPIfR dual channel 460/810 PI receiver

174; 1 NGC6334I CO (4-3) FLASH460-1 O: 06-SEP-2004 R: 07-SEP-2004
RA: 00:00:00.000 DEC: 00:00:00.00 (2000.0) Offs: +390.927 -0.929 Eq
Unknown Tau: 0.000 Tsys: 1351. Time: 2.927 El: 47.59
N: 1023 I0: 512.2 V0: -5.000 Dv: 0.6502 LSR
F0: 461048.457 Df: -1.000 Fi: 467048.457
B ef: 1.000 F ef: 0.9500 G im: 1.000



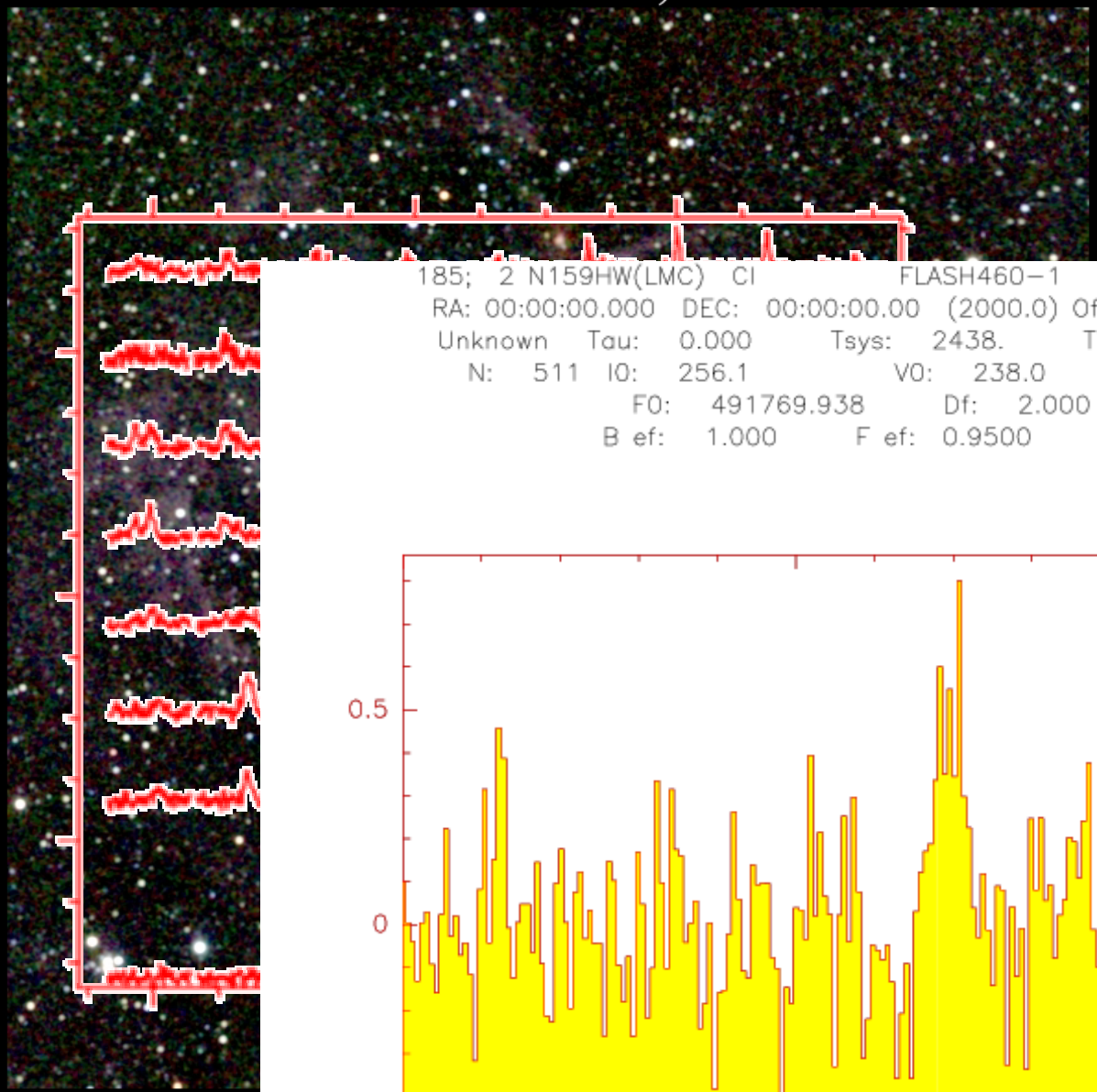
CO(4-3) [left] and CI and other molecules [below] in the NGC6334(I) star forming core

C6334I CI(1-0) FLASH460-1 O: 18-SEP-2004 R: 18-SEP-2004
00.000 DEC: 00:00:00.00 (2000.0) Offs: +395.325 -0.605 Eq
Unknown Tau: 0.000 Tsys: 3602. Time: 4.878 El: 27.05
N: 511 I0: 254.5 V0: -12.00 Dv: 1.218 LSR
F0: 492160.656 Df: -2.000 Fi: 498177.213
B ef: 1.000 F ef: 0.9500 G im: 1.000



The Tarantula Nebula, 30 Doradus

CO(4-3) with FLASH



185; 2 N159HW(LMC) CI FLASH460−1 O: 17−SEP−2004 R: 22−SEP−2004
RA: 00:00:00.000 DEC: 00:00:00.00 (2000.0) Offs: +168.638 −0.464 Eq
Unknown Tau: 0.000 Tsys: 2438. Time: 7.949 El: 41.08
N: 511 I0: 256.1 V0: 238.0 Dv: 1.219 LSR
F0: 491769.938 Df: 2.000 Fi: 497769.938
B ef: 1.000 F ef: 0.9500 G im: 1.000