

Name of research institute or organization:

**I. Physikalisches Institut, Universität zu Köln,
Radioastronomisches Institut, Universität Bonn**

Title of project:

KOSMA - Kölner Observatorium für Submm-Astronomie

Project leader and team:

Prof. Dr. Jürgen Stutzki, observatory director

Dr. M. Miller, station manager

Universität zu Köln: Dr. U.Graf, Dr. R. Simon, Dr. V. Ossenkopf

Project description:

The large scale distribution, physical and chemical conditions of the interstellar matter

The last observing season of the KOSMA 3-m-telescope was used for training of Chinese guest observers from NAOC, Beijing University, Nanjing University, Urumuqi Observatory, Tibet University, and Yunnan Observatory. These institutes belong to the Chinese Radio Astronomy Group, which is cooperating with the University of Cologne and University of Bonn and will use the telescope at the new site in Yangbajing near Lhasa in Tibet/China. The observing projects concentrated on Herbig Ae, Be stars, molecular gas associated with galactic SNRs, GLIMPSE identified bubbles, and Infrared Dark Clouds. The KOSMA Dual-SIS-Receiver for 230/345 GHz was used for observing $^{12/13}\text{CO}(2-1),(3-2)$ molecular transitions. Middle of March we stopped our observing program and started with disassembling the telescope.

The last helicopter flight with the lower part of the telescope socket



End of May we finished packing the panels, the back structure of the telescope, and all components of the observatory in more than 40 wooden boxes. The heavy azimuth and elevation part of the telescope mounting, and the two parts of the telescope socket were transported by a helicopter of Air Zermatt on June 02. The telescope was shipped from Basel to Hamburg by train, from there to China by a container ship, and arrived Tianjin harbor on July 28, 2010.

Key words:

Interstellar matter, ISM, millimeter, submillimeter wave telescope, SIS receiver, Yangbajing, Tibet

Internet data bases:

<http://www.ph1.uni-koeln.de/kosma>
<http://www.astro.uni-bonn.de>

Collaborating partners/networks:

MPI für Radioastronomie Bonn, Institut für angewandte Physik, Universität Bern, ETH Zürich, Astrophysics Division of CEA Grenoble, France, Observatoire de Bordeaux, France, Astronomy Department Peking University, China, National Astronomical Observatory Chinese Academy of Science (NAOC), Peking, China, NANTEN2 Observatory, Pampa la Bola, Atacama, Chile (Nagoya and Osaka University)

Scientific publications and public outreach 2010:

Refereed journal articles and their internet access

Kong, Shuo, Wu, Yuefang, Inclination-angle of the outflow in IRAS 05553+1631: A method to correct the projection effect, Accepted by the Monthly Notices of the Royal Astronomical Society

Chen, C., Huang, M, Radiation-driven implosion in the Cepheus B molecular cloud, *Research in Astronomy&Astrophysics*, **10**, issue 8, 777-784, 2010

Wang, K., Wu, Y.F., Ran, L., Yu, W.T., Miller, M., The relation between 13 CO J=2-1 line widths in molecular clouds and bolometric luminosity of associated IRAS sources, *Astronomy&Astrophysics* **507**, issue 1, pp. 369-376, 2009

Xu, J.L., Wang, J.J., Submillimeter/millimeter observations of the high-mass star forming region IRAS22506+5944, *Research in Astronomy and Astrophysics*, **10**, issue 2, pp. 151-158 (2010)

Ossenkopf, V., Ormel, C.W., Simon, R., Sun, K., Stutzki, J., Spectroscopic [CI] mapping of the infrared dark cloud G48.65-0.29, *Astronomy&Astrophysics*, **525**, id. A9, 2011

Kong, Shuo, Wu, Yuefang, Inclination-angle of the outflow in IRAS 05553+1631: A method to correct the projection effect, accepted by the Monthly Notices of the Royal Astronomical Society, <http://adsabs.harvard.edu/abs/2010arXiv1012.3268K>

Xu, Jin-Long, Wang, Jun-Jie, Miller, Martin Submillimeter/millimeter observations of the molecular clouds associated with the Tycho' Supernova Remnant, <http://adsabs.harvard.edu/abs/2010arXiv1012.2918X>

Conference papers

Verebélyi, E., Miller, M., Tóth, L.V., Makai, Z., Marton, G., CO survey of ARCHEOPS cold cores, *Journal of Physics, Conference Series*, **218**, Issue 1, pp. 012023, 2010

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