

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
Universität Bonn: Prof. Dr. F. Bertoldi, Prof. Dr. U. Klein, P. Müller

Project description:

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

The year 2009 was characterized by the decision of the 1. Physics Institute of the University of Cologne to stop the work at the Gornergrat observatory in 2010, and to relocate the KOSMA 3m telescope including all observatory components (without the dome) to the 4300m high site Yangbajing, 90 km north of Lhasa/Tibet. A contract between the University of Cologne and the National Astronomical Observatories, Chinese Academy of Sciences (NAOC) was signed in 2009-February.

Most of the observing time at the Gornergrat observatory was spend for training of Chinese guest observers fom NAOC, Beijing University, and Nanjing University. The KOSMA Dual-SIS-Receiver for 230/345 GHz was used for the observations. The projects concentrated on infall sources, colliding clouds, and super novae remnants (NAOC and University Nanjing), and MSX infrared clouds (University Beijing). Besides $^{12/13}\text{CO}(2-1),(3-2)$ transitions we observed $\text{C}^{18}\text{O}(2-1)$, $\text{HCO}^+(4-3),(3-2)$, $\text{CS}(5-4),(7-6)$, and CH_2 lines. In March, September, and December several engineers from Nanjing Haotian Astronomical Instrument & Equipment Co. (responsible for a new 8m dome at Yangbajing), Astronomical Instrument Institute Nanjing, and Institute 54 of the Chinese Electronics Technical Group Corporation visited the Observatory for discussing about details of the new dome, disassembling the telescope, and relocation to Tibet.

Key words:

Interstellar matter, ISM, millimeter, submillimeter wave telescope, SIS receiver, MSC clouds, 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 2009:

Refereed journal articles

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

Schneider, Nicola, Urban, Joachim, Baron, Philippe, Potential of radio telescopes for atmospheric line observations: I. Observation principles and transmission curves for selected sites, *Planetary and Space Science*, **57**, Issue 12, 1419-1433, 2009

Mao, Yuan, Wu, Yuefang, Liu, Fei, Star forming activities in W75N and DR21 Are the two regions in collision? *New Astronomy*, **14**, Issue 4, 391-397, 2009

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