

Presentation of the ETH-Zürich Radiospectrometer ARGOS

Christian Monstein
ETH Zürich
Astronomical Institute
Scheuchzerstrasse 7
CH-8092 Zürich
Switzerland

Recently we started a new project called ARGOS which will be supported by KTI and Swiss industry. ARGOS is a FFT heterodyne radio spectrometer using one of the latest designed FPGA circuits containing huge hw-resources, and a GHz sampler from Acqiris company in Genève. The sampler is working with 2 Gigasamples per second producing a datastream of 8 bits. These 2 Gigabytes/sec data stream will be fourier-transformed in real time within the FPGA. The complex results of the FFT will then be converted into intensity and integrated during about 2msec. Every 2msec we can get a full spectrum with 1 GHz bandwidth having up to 16384 channels. Other input frequencies above 1GHz can be observed using a heterodyne down-converter. We plan to supply the Gornergrat-telescope KOSMA (200GHz-800GHz) 3000m asl near Zermatt Switzerland with one of these spectrometers. In addition we also plan to supply the 100m parabola in Effelsberg near Bonn with a second FFT spectrometer. A third instrument will be used on our own instrument to observe solar radio activity between short wave and 1GHz. The other instruments in Effelsberg and Gornergrat will be used for spectroscopy of molecular lines in dust clouds in our galaxy or star forming regions outside of our galaxy.