s7.m0.p5 **Temperature Controlled Humidity Chamber for X-ray Diffraction Analysis.** D. Beckers*, P. Doppler**, B. Koppelhuber***, G. J. Reiß****, **Philips Analytical, The Netherlands, **Anton Paar GmbH, Austria, ***Technical University Graz, Austria, ****Heinrich - Heine - Universität Düsseldorf, Germany.*
Keywords: temperature, humidity, instrumentation.

X-ray diffraction measurements at defined environmental conditions are essential for lots of application areas. In pharmaceutical research as well as for the investigation of clays or any other hydrating minerals there is an increasing need to investigate the influence of temperature changes and different relative humidities on for example crystal structure, phase transitions or polymorphism of the samples.

Until recently, commercially available non-ambient systems allowed control of the temperature of the sample, or the relative humidity of the sample at room temperature. Simultaneous control of both temperature and humidity was not possible. This presentation introduces a non-ambient chamber where the temperature and the relative humidity can both be independently controlled. With this chamber X-ray diffraction analysis can be performed between room temperature and 50^{o}C at variable relative humidities. In dry air, other dry gases or vacuum conditions, a temperature range between 0^{o}C and 120^{o}C is available. The instrumentation is described and the performance is demonstrated on samples for different application areas.

s7.m0.p6 **A SMART move. The Bruker AXS integrated system for protein data collection.** T. Wagner, S. Foundling, C. Bauer, *Bruker AXS, Östliche Rheinbrückenstr. 50, 76817 Karlsruhe, Germany, and 6300 Enterprise Lane, Madison, WI 53719, USA.*
Keywords: instrumentation, detectors.

Over the past few years CCD detectors have gained wide acceptance for X-ray data collection from both protein and small molecule crystals. Whereas in chemical crystallography this detector type is already widely employed in home laboratories, its use in macromolecular crystallography has been limited almost exclusively to synchrotron facilities.

Most recent experience has shown, however, that CCD area detectors can successfully compete with, and even surpass, other types of detectors under typical protein laboratory conditions as well. This holds not only regarding the time aspect but also regarding data quality and reciprocal space coverage. This feature along with the significant advantage in speed will establish a new era in biological crystallography. It is now feasible to completely characterize large numbers of crystals in preparation for synchrotron trips, to produce interpretable maps of potential derivatives or mutants within a few hours, and to pursue data collection strategies with small oscillation angles within a reasonable time frame.

The Bruker AXS fully integrated solution for the home laboratory use is based on the SMART 6000 CCD 4K detector on a standard three-circle goniometer. The system is completed by a state-of-the-art x-ray generator and a newly designed low temperature device.

Our latest results with the SMART 6000 system will be presented.