



## Poster Prizes at ACA, AsCA and ECM

Once again in 2004, Oxford Cryosystems was proud to fund poster prizes at the major crystallographic conferences. The Oxford Cryosystems Low Temperature Prize is awarded to the best poster describing applications of or developments in low temperature crystallography. The winners received a cash prize and certificate donated by Oxford Cryosystems. The posters are judged by an independent panel of judges selected by the meeting chair. Prizes this year were won by the following posters which can also be downloaded from the Oxford Cryosystems website:

### AsCA, Hong Kong

The order-disorder transition at 150 K Polymeric Ag(bipy)NO<sub>3</sub>  
Weenawan Somphon, Kenneth J. Haller, and A. David Rae

### ACA, Chicago

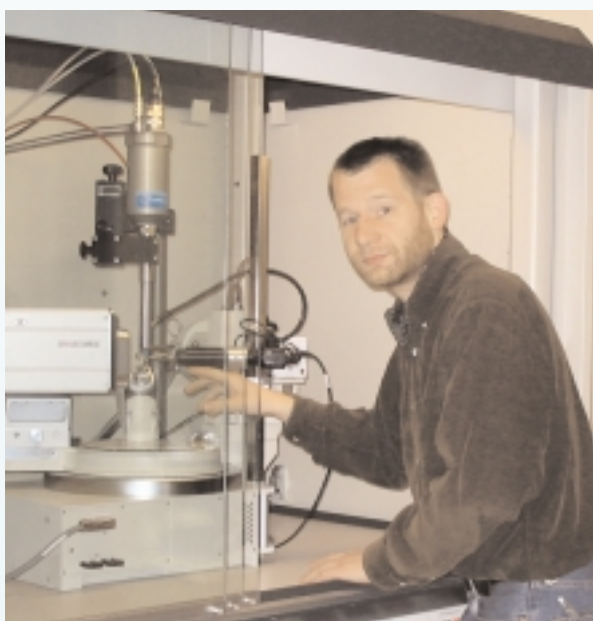
Low Temperature Investigation of Gas Adsorption Sites in a Porous Metal-Organic Framework

J. L. C. Rowsell, E. C. Spencer, G. J. McIntyre, J. Eckert, J. A. K. Howard, O. M. Yaghi

### ECM, Budapest

Gaining Information at low-T with Laboratory Capillary X-ray Powder Data Collection  
Philippe Fernandes, Alastair J. Florence, William I.F. David, Kenneth Shankland, Norman Shankland.

*Congratulations again to all of the poster prize winners!*



## Crystallographer Profiles

In this issue, we are delighted to have profiles of 2 of our Crystallographer customers. If you are interested in 'starring' in our next issue, please email [kate@oxfordcryosystems.co.uk](mailto:kate@oxfordcryosystems.co.uk)

*Peter Mueller at MIT with his new Cryostream 700 Series.*

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### Inside this issue of Cool News:

- ◆ Oxford Cryosystems Poster Prize winners from ACA, AsCA and ECM
- ◆ Crystallographer Profiles: Chilling Out at MIT and Cryostream at the Rudjer Boskovic Institute
- ◆ Cobra; our non-liquid Cryostream
- ◆ Win a mini bar fridge for the lab!
- ◆ Phasing out of 600 series Cryostreams: timescales
- ◆ Oxford Cryosystems agents around the world
- ◆ Meetings over the next few months

By Peter Mueller,  
X-Ray Diffraction  
Facility, MIT

## Crystallographer Profile

### Chill Out at the MIT Diffraction Facility

**In July 2004, I took over the X-Ray diffraction facility of the chemistry department at MIT. Before that I was a postdoc at UCLA with David Eisenberg and a Ph.D. student in George Sheldrick's lab in Göttingen. The MIT chemistry department is one of the finest in the world; therefore I was surprised to find a much outdated low temperature device limiting the use of an excellent state-of-the-art Bruker diffractometer.**

After collecting diffraction data at  $-80^{\circ}\text{C}$  for years and years, we finally purchased a new low temperature device. The Cryostream 700 from Oxford Cryosystems arrived in six boxes and the assembly was straight forward. Even though I was a little reluctant to drill holes in the base of our diffractometer enclosure, everything worked very well. The Varibeam support stand is robust and allowed me to mount the Cryostream precisely where I wanted it, without interfering with the moving parts of the diffractometer. A great tool is the electric-blue dummy that helps to accurately position the support stand without the coldhead in place. That simplifies all adjustments and avoids nasty surprises. In general, the gears on the Varibeam make adjusting the exact position of the coldhead easy and precise. Worth mentioning is that the Cryostream works extraordinarily well with the

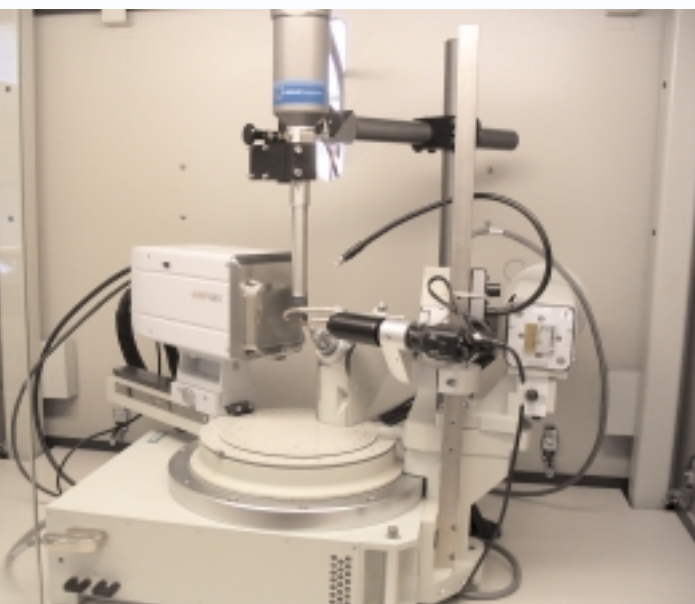
Bruker three-circle geometry (we have the older Platform model, but the modern D8 is very similar). It is not difficult at all to find a good position for the device and, in addition, it looks really good.

When I first switched on the Cryostream controller I expected that

something would go wrong. Most things do. But here: nothing – no faulty connection of the tubing, no defective chip in the controller, no problems with the pump or the dry air unit. Everything worked quite smoothly and the device cooled down to 100K within 20 minutes. After about 10 days I shut down the system to include the Line Drier and to install the auto refill system. That took a couple of hours and afterwards the Cryostream cooled down again to 100K without any problems. It has been operating at that temperature since and more than two dozen small-molecule datasets have been collected.

With our old setup we had a big problem with the formation of ice on the sample, especially when the humidity in the lab was high. This problem simply does not exist any more. Now we can collect data whenever we want to and not only when the humidity level allows it. Another point is the quality of the diffraction data collected with the new setup: it is excellent. Everybody knows that low-temperature data is better, but to actually experience it is a different story. At  $-80^{\circ}\text{C}$  many tert-butyl, iso-propyl,  $\text{CF}_3$  and  $\text{Cp}^*$  ligands were disordered, and now we have practically no disorders at all. The average merging R-values have improved too, and most refinements are much less of a hassle than before.

Long story short: the X-ray diffraction facility of the MIT chemistry department produces more and better structures and makes better use of its excellent diffractometer thanks to the Cryostream 700.





PhD student Z. Stefanic (left) and Dr. A. Visnjevac with the new Cryostream 700 series.

## Crystallographer Profile 2

### **Cryostream at the Rudjer Boskovic Institute: Laboratory for Chemical and Biological Crystallography**

**Project Leader Dr. Biserka Kojic-Prodic & Head of the Laboratory, Dr. M. Luic**

The Laboratory for Chemical and Biological Crystallography has used the Nonius CAD4 diffractometer including low-temperature facility for over 14 years. However, in 2003 a new Oxford Cryostream 700 series was purchased in order to save liquid nitrogen and to run experiments with more advanced cryotechnology. We have found the Oxford Cryostream easy to operate and reliable. It would be nice to have a new diffractometer using more advanced technologies but at the moment this is just wishful thinking!

Our main research is focused on the study of biocatalysis using protein crystallography and modelling. However, we are working in the field of small molecule crystallography related

to biologically important compounds, especially those exhibiting extensive hydrogen bonding. We have also used X-ray structure analysis for identification of molecular structures of novel compounds.

In our group Dr. B. Kojic-Prodic runs the national site of the Cambridge Structural Database which has organized access for colleagues in Croatia, Slovenia and Macedonia for the last 20 years. Our group collaborates with a number of colleagues via bilateral scientific projects with Austria and Germany. We hope to renew our contacts with other European countries within the frames of European Union in the near future.

## Product Profile

### **New Cobra a Cool Addition to Oxford Cryosystems Product Range**

The new Cobra system from Oxford Cryosystem has been very well received with orders being placed by institutes as geographically diverse as the UK, US, mainland Europe and Asia.

We launched the Cobra officially at the BCA meeting in Manchester this year, followed by further promotion at the AsCA (Hong Kong), ACA (Chicago) and ECM (Budapest). Delegates seemed most impressed by the compact shape of the Cobra which allows for extra manipulation and flexibility.

By using nitrogen gas from a generator or in-house source, the Cobra eliminates the need

for liquid nitrogen in the lab, bringing advantages in terms of cost and lab safety. This is especially useful for labs for whom liquid nitrogen is either costly or where a steady supply is logistically difficult.

Cobra has been designed to incorporate the major advantages of the Cryostream; stability, broad temperature range and reliability. Like the Cryostream, it can be programmed to ramp, cool and maintain different temperatures and can also be monitored remotely via the Cryopad software. For more details, see [www.oxfordcryosystems.com](http://www.oxfordcryosystems.com)





Left: Marc Hostettler  
Right: Mitchell Guss

## Competition

### Prize from Spring Issue of Cool News

In the Spring issue, we gave away 2 prizes of Kingston 512MB 2.0 Hi-Speed USB flash drives. The winners were Mitchell Guss of the School of Molecular and Microbial Biosciences, University of Sydney and Marc Hostettler, Laboratory of Crystallography, University of Berne. We hope they come in useful!

The question was: What is the liquid nitrogen consumption in L/hour of the new Cobra system from Oxford Cryosystems? The answer of course was zero (0). The new Cobra uses nitrogen gas, and doesn't use liquid at all!

### New Cool Prize Competition

We have gone back to the beginning with our "cool prizes" and once again, we are offering a mini fridge for your lab or office. This is a particularly nice "Bar fridge" with a glass door, just perfect for keeping the water (or beer) cool!

**This issue's question is: In 2005, Oxford Cryosystems will celebrate a special anniversary. For how many years will Oxford Cryosystems have been commercially supplying the Cryostream to the crystallographic community?**

Send your answers to [kate@oxfordcryosystems.co.uk](mailto:kate@oxfordcryosystems.co.uk) with newsletter in the subject line. The winner will be drawn from the correct answers on Friday 28th January, and will be notified by email.

## Oxford Cryosystems News

### Important Information for owners of 600 series Cryostreams

The well loved 600 Series Cryostream has shown itself to be a true workhorse. Many of our customers have had these systems in round-the-clock operation for more than a decade now.

However, the design of the 600 System is getting on in years and electronics technology has made huge advances in the last decade.

As time moves on, it is becoming increasingly difficult for Oxford Cryosystems to source the parts needed for these systems, and thus support them.

Therefore, we would like to warn all customers that from **1 November**

**2005**, we will no longer be able to guarantee availability of parts for the 600 series, and may not be able to support or resolve any problems with these systems.

#### AD31

The AD31 dry air unit has been superseded by both the AD41 and the AD51, and again, availability of spare parts is becoming an issue. We are unable to guarantee availability of spare parts for the AD31 dry air unit after **1 June 2005**.

#### Upgrade Paths

The good news is that Oxford Cryosystems offer an upgrade route for existing customers, which represents an excellent discount off the list price of the new 700 series, Cryostream Plus or even Cobra non-liquid system. For more details and prices, contact Liz (US) or Kate (Rest of World).





*Mr Suresh Pemmaiah,  
Head of HP Instruments*

## Oxford Cryosystems around the World

Many of our customers deal directly with the Oxford Cryosystems offices in the UK and US, or buy their Cryostreams through the major X-ray companies. However, Oxford Cryosystems also has an excellent network of independent agents throughout the world, who have worked with our products for years and provide an excellent service to our customers. Here two of our agents introduce themselves:

### India

H P INSTRUMENTS was founded by experienced personnel in the field of Scientific Instruments in March 1995 and is headed by Mr. Suresh Pemmaiah.

We supply the state-of-the-art instruments for Analytical Research & Quality Control Applications. Our main area of operation is to cater to the needs of X-ray Crystallographers; Optical Testing Laboratories, Research Institutions & Defence Research Laboratories. Our major customers are located at the following centres:

- ◆ Indian Institute of Science; Bangalore
- ◆ All India Institute of Medical Sciences; Delhi
- ◆ Centre for Cellular & Molecular Biology; Hyderabad
- ◆ Indian Institute of Microbial Technology; Chandigarh
- ◆ Centre for Liquid Crystal Research; Bangalore
- ◆ Regional Research Laboratory; Bhubaneswar
- ◆ Indian Space Research Organisation; Bangalore
- ◆ Defence Science Centre & Laboratories
- ◆ Optoelectronics Factory; Dehradun
- ◆ Centre for DNA Finger Printing Diagnostics; Hyderabad

### Service

We undertake the responsibility to initiate enquiries, negotiate orders, install the equipment and provide service support during warranty / post warranty period.



*Jacques Devos*

### Contact Details for Customers:

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e-mail: hpi@bgl.vsnl.net.in  
www.hp instruments.com

### France, Belgium and Switzerland: Jacques Devos

Jacques first studied at the 'Ecole Supérieure de Physique et Chimie de Paris' and was then awarded a PhD from the University of Strasbourg. He then became involved in the introduction of computer techniques (starting with mini then micro computers) in very different domains such as:

- ◆ civil constructions,
- ◆ toxicology, sleep monitoring in pharmaceutical research in Switzerland,
- ◆ electronic printing for bank security documents as checks and credit cards.

Since 1991 Jacques has developed an excellent reputation as a commercial agent in scientific instruments, particularly those for X-ray diffraction measurements and also in the medical area.

As he says, " Thank to visits, phone discussions, expedition of documents and performance of tests in Oxford I try to develop the familiarity of potential customers to Oxford Cryosystems products. I have to study their unique problems and try to offer them the best solution using our products. When an

order has been placed, I have to "follow" it until the product has been delivered. I am active in Belgium, France and Switzerland where most of the diffraction laboratories for minerals or proteins have been my customer. My principal customer is the European Synchrotron Facility (ESRF) in Grenoble which includes scientific teams coming from many different European countries.

I am very interested by the Metripol birefringence imaging system from Oxford Cryosystems, as I feel it can be used in so many different areas. My first contacts for this product cover applications as diverse as

diamond quality control and human in vitro fertilisation.

As shown in the photo the flute is for me a good way to empty my head from professional distractions.

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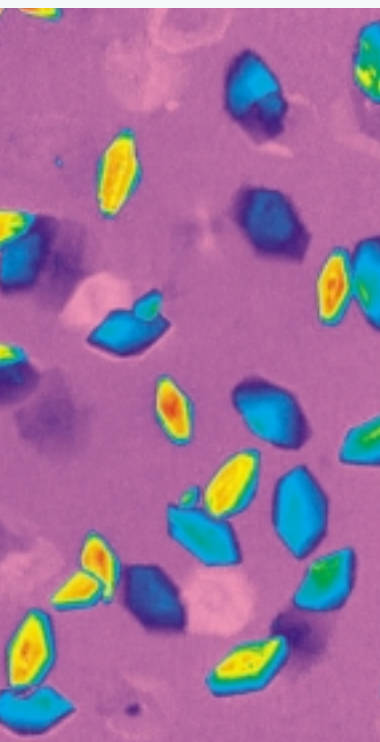
## News in brief

Oxford Cryosystems attended the **Protein Structure Determination in Industry (PSDI)** conference at Ashford, UK, in November for the first time this year. In addition to Cryostream and Cobra, we demonstrated the

Metripol birefringence imaging system ([www.metripol.com](http://www.metripol.com)) with a focus on imaging the protein crystallisation process.

**Cryopad** software is now available to remotely monitor all new Oxford Cryosystems products, including Cryostream 700 series, Cryostream Plus, N-HeliX and PheniX systems from 2004. All shipments now include cryopad software on CD but you can also download it from [www.oxfordcryosystems.com](http://www.oxfordcryosystems.com)

A 90-day free trial of **Crystallographica Search Match (CSM)** is now available to download from our website at [www.oxfordcryosystems.co.uk](http://www.oxfordcryosystems.co.uk). CSM is a search match program for use with the International Centre for Diffraction Data's PDF2 Powder Diffraction File.



Protein crystals viewed with Metripol



## Come & meet us at....

...the following meetings planned for Oxford Cryosystems over the next few months

8-9 February  
2005

**ESRF Users Meeting**  
Grenoble, France

12-14 April  
2005

**British Crystallographic Association Meeting**  
Loughborough, UK



OxfordCryosystems