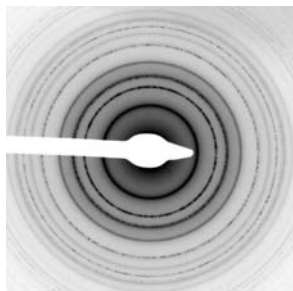


INNOVATIAL ProcessDiffraction School

Budapest, 5-10 May 2008



Location of the School:

Research Institute for Technical Physics and Materials Science (MFA)

KFKI Campus, 1121 Budapest, Konkoly-Thege Miklós u. 29-33

HUNGARY

Home page: <http://www.mfa.kfki.hu/~labar/ProcessDiffractionSchool.Pdf>

The School is part of the training activity program of the EU Project *IP 515844-21 "Innovative processes and materials to synthesise knowledge-based ultra performance nanostructured PVD thin films on gamma titanium aluminides – INNOVATIAL"*

Topic of the school: *Computer assisted processing of electron diffraction patterns*

The school gives an intensive training in obtaining quantitative structural information by applying the ProcessDiffraction computer program for the evaluation of selected area electron diffraction (SAED) patterns, recorded in transmission electron microscopes (TEM). The ProcessDiffraction Program has been worked out by Prof. J.L. Lábár (home page: <http://www.mfa.kfki.hu/~labar/ProcDif.htm>) became popular and is being applied in a high number of laboratories. This school is the first to educate the newest quantitative features of the program, namely determination of volume fractions of nanocrystalline phases and fiber textured component

In the frame of the School lectures will be provided to serve as the theoretical foundation for the practical sessions.

Practicals will use the ProcessDiffraction program that runs under the Windows operating system on IBM PC compatible computers. Participants are encouraged to bring their laptops for the hands-on practice. Those arriving without computer will use the computers of the Host Institution (MFA).

Manual containing theoretical background and instructions for the examples, used for the practical sessions will be prepared. Participants will be provided with the manual and a CD containing the examples.

Participants will learn how to

- Record electron diffraction patterns in a reproducible, calibrated way
- Determine local composition of the TEM samples from X-ray emission spectroscopy (EDS) and / or electron energy loss spectroscopy (EELS)
- Identify crystalline phases using the XRD database
- Index a set of single-crystal diffraction patterns
- Record structure of materials for modelling, by using space-group, asymmetric unit within the unit cell, Wickoff-symmetries and multiplicities, and using different information sources
- Quantify the volume fractions of the nanocrystalline phases
- Identify and quantify textured components in the nanocrystalline phases
- Refine unit cell parameters (for distorted nanocrystalline phases, or for solid solutions), if an inner Marker is available

- Obtain pair-correlation functions (nearest neighbour distances) for amorphous and random nanocrystalline phases

Examples will be solved for both simple and complicated cases, in order to acquire a feeling of both the possibilities and the limitations of the method. During the directed hands-on practice, participants will repeat the steps –shown by the instructor on projector screen- on their personal computers one-by-one. Additional consultation time will also be provided.

Audience:

The School targets both researchers and PhD students (most probably in physics, chemistry or materials science), who are using or plan to use electron diffraction in their work. No special prior knowledge is assumed.

Director and Instructor of the School:

School participant will be instructed by the developer of the ProcessDiffraction method:

Prof. János L. Lábár, D.Sc., Head of Thin Film Physics Department.

Dates:

- **Written applications for participation must reach by 10 March 2008** to the secretary of the school:

Róbert O Grasin

e-mail: grasin@mfa.kfki.hu

Phone: +36 70 392 77 46

Fax: +36 1 392 22 73

Postal address: Research Institute for Technical Physics and Materials Science, HU-1525 Budapest, P O Box 49

Please send the filled in Registration Form by e-mail, fax or mail!

- **Hotel reservation:** Special discount is given by the Hotel to the School. The discount is only valid if Hotel reservation is made through the School Secretariat (see above). Deadline for Hotel reservation at special price is **10 March 2008**.
- **5 May** (Monday) arrival day
16.00 p.m. Installation of the newest version of the ProcessDiffraction program, together with the examples. A wellcome drink will be offered to bring together participants in the evening.
- **6-9 May:** full day education. A half-day excursion is planned for one of the afternoons.
- **10 May:** departure day.

Those, who want to extend their stay in Budapest and need reservation of accommodation for additional day(s), are advised to indicate it in advance.

Registration:

Registered participants are entitled to attend the lectures and the practical sessions, will receive a printed version of the Manual and a CD with the examples. Coffe and mineral water during coffe-breaks is also included.

The number of participants will be limited, due to the limited facilities for the practical sessions.

Priority is given to INNOVATIAL partners. The others will be selected on a first-come-first-served basis.

Participants have to cover their own costs for travel, Hotel and subsistence.

Hotel:

Hotel rooms are available for the School participants close to the Campus. Special prices for School participants are:

single room 66 EURO / night

double room 76 EURO / night.

All taxes, breakfast, usage of swimming pool, fitness room, sauna, solarium and a closed (open air) parking lot are included in the price. Special price is only valid if reservation is made through the School Secretariat.

- Four-star Hotel Normafa. Home page: <http://www.normafahotel.hu/>

Venue:

The School is organized at the KFKI Campus, where buildings are scattered in the forest. The whole Campus is fenced and guarded. In order to obtain the Entry Permission in time, foreign participants are asked to supply their passport number, together with the name and address of their employer in the Registration Form

Cancellation:

If you are forced by any condition to cancel your participation, please do it as soon as it is possible. Remember that your registration might have pushed out others from participation (limited space).

Food:

There is a Canteen at the Campus. Inexpensive lunches will be arranged for the interested. A proper Restaurant is within two bus stops as an alternative for the more choosy.

Please indicate in advance, if you have special dietary request!

Interested participants will be escorted to a few Restaurants in some of the evenings to recommend Restaurants with a favourable quality/price ratio on a private basis.

Travel:

By air: All major cities in Europe are served by different air carriers from Budapest. There is a fixed rate taxi service from the airport to the Hotel.

By car: From „Déli pályaudvar” (South railway station) you should follow Nagyeredy u, Istenhegyi u, Diana u, Eötvös u, Konkoly-Thege M. u. Hotel Normafa is at the corner of Eötvös u. and Konkoly-Thege u.

Local transportation: City bus number 90 transports you from the city („Moszkva tér” or „Déli pályaudvar”) to the KFKI Campus, having a bus stop close to the Hotel Normafa in between.

Weather:

Weather is changing in April in Budapest. Average temperature is ...

Take your umbrella, since occasional showers of rain are expected.

Social:

A Welcome Drink will be offered. No other formal events are planned.

Visa:

If you are resident of a country, which needs visa in Hungary, please check the conditions at the Hungarian Embassy. Please indicate to the school Secretary if you need a written support from the organizers in order to obtain the visa.

If you bring your own Laptop computer:

Requirements: IBM compatible, with Windows operating system. You must have the privilege to install programs on the PC (“Administrator” rights/ password might be needed) Minimum RAM 1 Gbyte.

REGISTRATION FORM

Family name

Given name(s)

Title (Prof., Dr., Ms., Mr., ...)

Institute:

Country, issuing passport:

Passport number:

Do you want the organizers to reserve Hotel for you (Yes / No)

 Date of arrival:

 Date of Departure:

 Single room or double room

 Name of accompanying person in Hotel (if any):

Special requests for food (vegetarian, etc.)

Do you plan to bring your own laptop? (yes / no)

Alternatively, do you need a computer from the organizers for the practicals? (yes / no)

Do you need help for visa (yes / no)

 If yes, elaborate!:

Send back this Registration Form by e-mail, fax or mail to

Róbert O Grasin

e-mail: grasin@mfa.kfki.hu

Phone: +36 70 392 77 46

Fax: +36 1 392 22 73

Postal address: Research Institute for Technical Physics and Materials Science, HU-1525
Budapest, P O Box 49

Date of application:

Signature: