

The DoITPoMS Project: an "embedded" resource?

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DoITPoMS

❖ What is it?

- "Dissemination of IT for the Promotion of Materials Science"

❖ How did it come about?

- collaborators in HEFCE FDTL3 Project 8/99
- additional support from the UKCME
- cooperation with MATTER



What's in it?

❖ **Micrograph Library**

- over 800 micrographs with descriptions
- searchable
- <http://www.msm.cam.ac.uk/doitpoms/miclib/index.php>

❖ **Teaching and Learning Packages (TLPs)**

- 22 on web, 10 in development
- <http://www.msm.cam.ac.uk/doitpoms/tlplib/index.php>

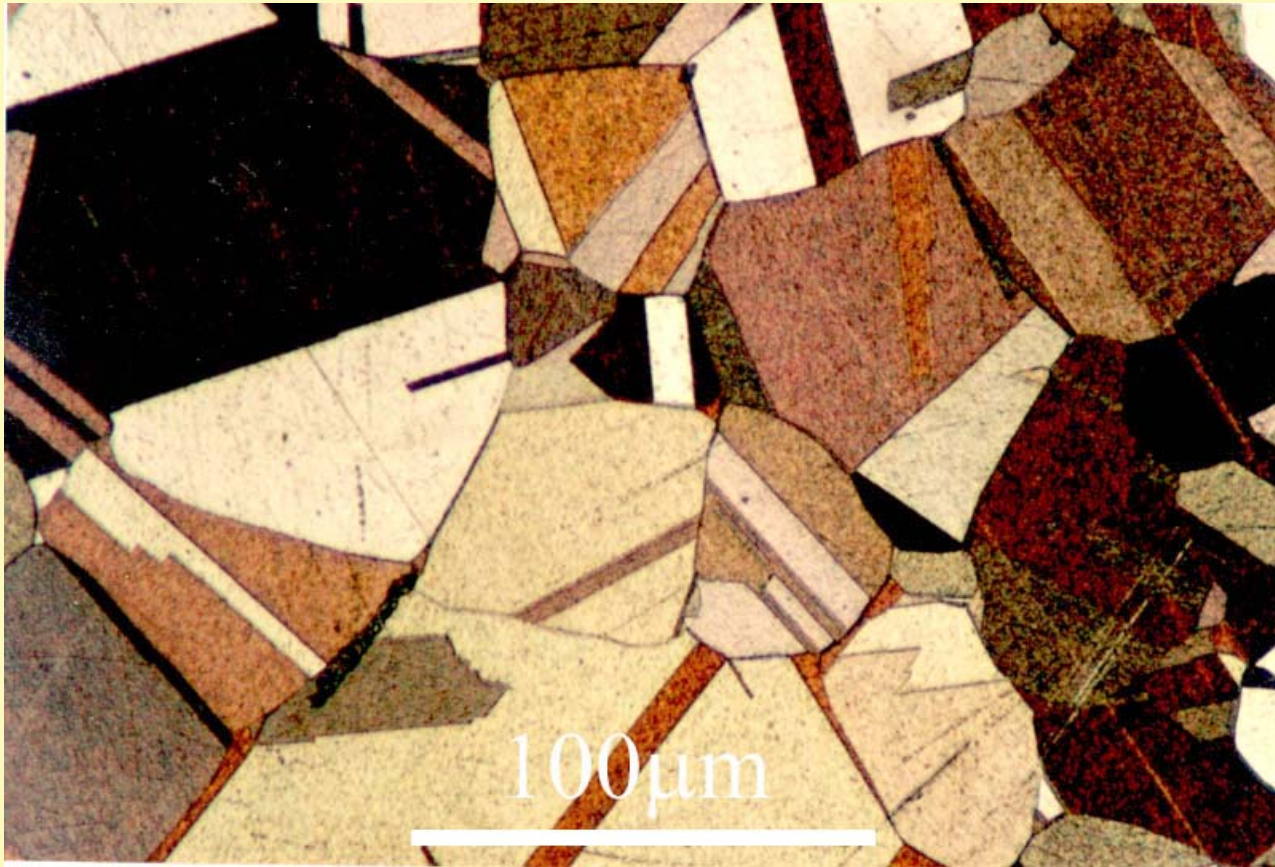
❖ **No ipr restrictions for academic use**



Micrograph no 430

Brief description

Cu 70, Zn 30 (wt%), recrystallised - annealing twins



DoITPoMS Teaching and Learning Packages

Atomic Scale Structure of Materials

This teaching and learning package provides an introduction to crystalline, polycrystalline and amorphous solids, and how the atomic-level structure has radical consequences for some of the properties of the material. It introduces the use of polarised light to examine the optical properties of materials, and shows how a variety of simple models can be used to visualise important features of the microstructure of materials.



Aims

Introduction

Single crystals: Shape and anisotropy

Single crystals: Mechanical properties

Single crystals: Optical properties

Polycrystals

Defects

Summary

Questions

Going further



Some lessons from experience

❖ Personnel needed to create such resources

- Skilled project staff in addition to academic staff
- Summer vacation students
 - ☑ Students helping to create resources provide ideas, rapid feedback and frank evaluation

❖ Some difficulties faced

- Recruitment and retention of skilled project staff
- Browser/platform variations
- Restricted software availability on some institutional networks

❖ How were these difficulties overcome?

- Not all have! Over some we have no control



On-going Work

- ❖ UKCME supporting work developing further TLPs
- ❖ Acquisition of further micrographs (from around the world)
- ❖ CMI (Cambridge-MIT Institute) project developing "Instructor Resource Modules"



How are the resources being used by us?

❖ Academic Staff

- demonstration/illustration in lectures
- preparation for and use in supervisions (tutorials)

❖ Graduate Teaching Assistants

- preparation for teaching in practicals
- preparation for and use in supervisions (tutorials)

❖ Students in connection with

- preparation for/revision of practicals
- source of information for use with Question Sheets



What impact are they having?

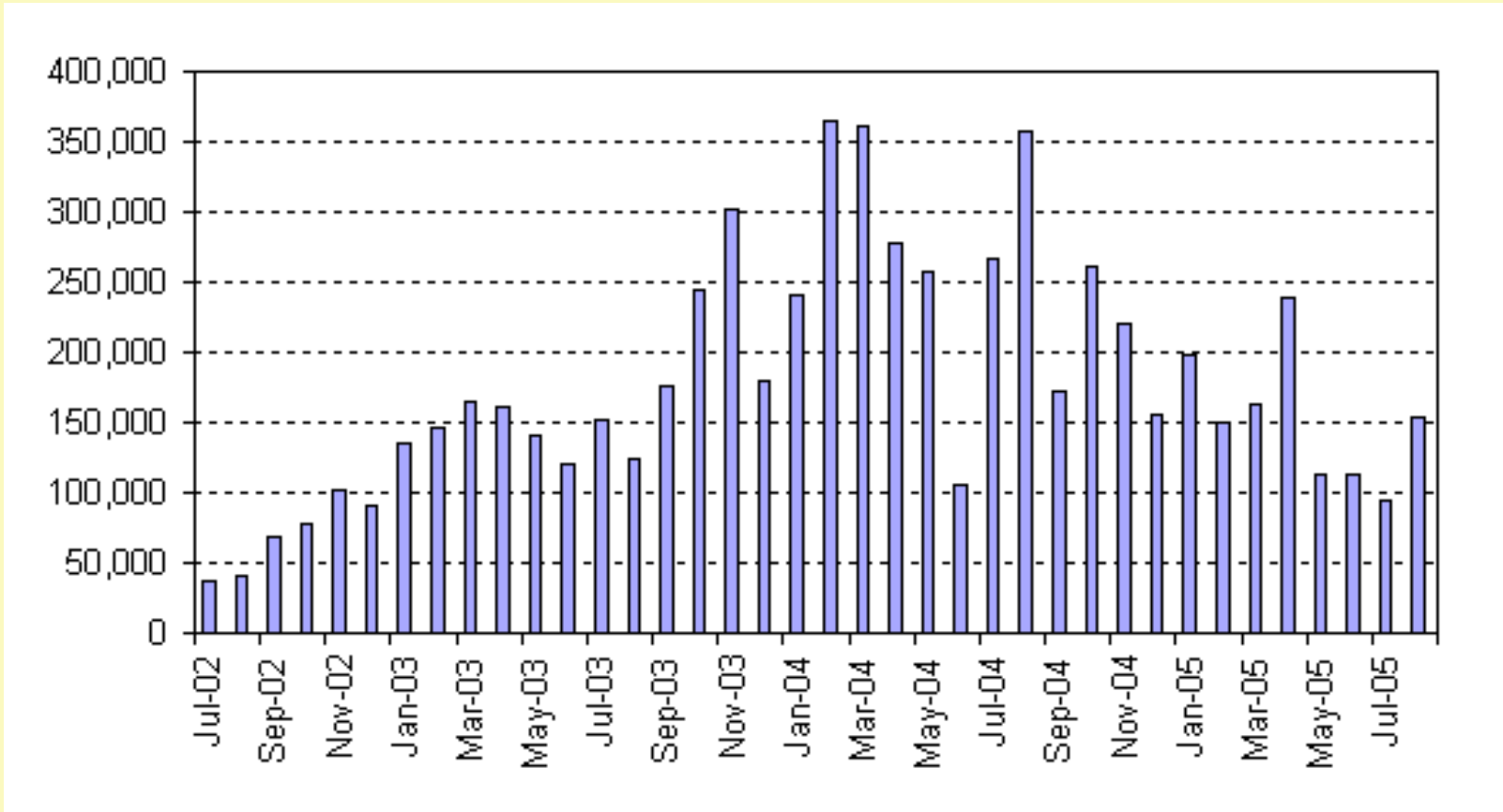
- ❖ Greater awareness of web-based teaching resources generally:
 - amongst students
 - amongst graduate teaching assistants
 - amongst academic staff

- ❖ But is DoITPoMS yet "embedded"?



Usage: Access statistics (world-wide hits per month)

<http://www.msm.cam.ac.uk/doitpoms/access.html>



Encouraging wider take-up 1

- ❖ What factors encourage take-up of such resources for students in other courses and institutions?
 - resources that are easy to incorporate - bite-size is better
 - that illustrate and augment, rather than sweep away
 - academic staff are given opportunities for hands-on experience
 - ☑ e.g. organise a workshop
 - colleagues from other institutions involved during development



Encouraging wider take-up 2

❖ For other academics to take-up such resources

➤ (i) what would they need to **know**;

☑ what they wish to achieve!

☑ what is available - should be readily located via Subject Centre, Google, Psigate, EEVL, ... (depending on discipline)

➤ (ii) what would they need to **do**;

☑ consider use within lectures

☑ assess the infrastructure implications

☑ devise suitable material to encourage students to work through the on-line resources regularly, e.g. question sheets, briefings for practicals



Factors influencing academic staff 1 perception of available resources

- ❖ **trust - in the content** (and in the authors)
 - former often influenced by knowledge of latter
- ❖ **technical quality**
 - very important; students are accustomed to computer-based material of high technical quality
- ❖ **ease of use - by staff;** expected ease of use by students
 - standard layout
 - searchable



Factors influencing academic staff 2

❖ in favour

- recognition of current student expectations

❖ against

- time-commitment in incorporating "external" resources into lectures or practicals (*vs* the next RAE)
- "I could do better, if only I had the time"

❖ critical mass

- successful initiation is much more likely with more than one enthusiast based in the Department (*vs* central exhortation)

❖ high-level support

- recognition - it's more than a spare-time activity!
- provision of resources for implementation



Final thoughts

❖ What has been particularly successful in our project?

- Involvement of students and several academic staff
- Employment of Project Officer with substantial (school) teaching experience and high-level computing skills

❖ What about the future?

- Teaching resources, especially computer-based resources, soon grow tired; maintenance is essential; skilful staff input will continue to be required to provide TLC

<http://www.msm.cam.ac.uk/doitpoms/>

