The DoITPoMS Project:
A Web-based Initiative for Teaching and Learning Materials Science

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Talk Outline

• History, Scope & Objectives

• Library of Micrographs

• Library of Teaching & Learning Packages
Background to the Initiative

- Origins in MATTER project (MATerials Tertiary Educational Resources), which started around 1990: ongoing links with MATTER at Liverpool (Subject Centre)
- Evolving technical situation created various challenges throughout 1990’s, concerning programming languages, platforms & delivery mode: now entirely web-based
- DoITPoMS (Dissemination of IT for Promotion of Materials Science) project started in 2000, with HEFCE funding
- 5 UK University partners, supplying material & evaluating packages. Current links with MIT (Cambridge-MIT Institute)
- Workshops and Meetings ~ annually
- Aim is to produce bite-sized resources, that can be used in a flexible manner, to minimise “Not Invented Here” effect
Ongoing Activities

• Consolidation of Micrograph Library

• Expansion of Library of Teaching & Learning Packages, partly via regular “Summer School” of Student Participation in Cambridge

• Maintenance of Website, Correspondence with Contributors, Feedback from Users etc

• Liaison with UK Government-funded Subject Centres - in Materials Science (Liverpool) & Engineering (Loughborough)
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The Micrograph Library

- About 800 Micrographs currently in the Library
- Each comes with “metadata” in 13 fields, giving Keywords, System, Composition, Processing, Sample Preparation, Microscopy Technique etc
- Linked in many cases to Interactive Phase Diagram
- Keywords linked to MATTER glossary
- Low- and High-Resolution Images available
- All Downloadable and Copyright-free
Offline Browsing of the Micrograph Library

- Using the Library
- Metadata
- Keywords & MATTER glossary links
- Microscopy Techniques (> 20 represented)
- Accessing Phase Diagrams
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The TLP Library

• Currently 22 TLPs in the Library, each covering a specified Topic. Expect ~ 50 TLPs in due course.
• Unified Format, with Aims, Introduction, Summary, Questions etc.
• Contain Animations, Simulations, Video Clips, Exercises etc, as well as Static Images and Text.
• Some based around a Practical Experiment.
• Navigation Aids and Links to External Sites.
• Designed for use by Academic Staff, in creating & enhancing Lecture Courses, or by Students, independently or for Course Assignments etc.
Offline Browsing of the TLP Library

• Accessing & Using the Library

• A TLP in more depth - Rubber Elasticity

• An Example Simulation - Photoelastic Loading

• An Example Simulation - Jominy End Quench
Summary

• Creating good educational software, while not exactly easy, is perfectly possible, particularly if students can be recruited to help create & test it.

• The software has to be good, from both educational and IT points of view, and also well-packaged, otherwise you’re wasting your time.

• Persuading academic colleagues to use educational software is a challenge, although creating real awareness of what is available is perhaps the hardest part of this.

• Next hardest part arises from their conviction that they could do it better, if only they had the time - libraries of bite-sized resources allow local creativity.

• It makes sense to join forces with other initiatives.

www.doitpoms.ac.uk