



Department of Materials Science & Metallurgy  
University of Cambridge, UK

# **The DoITPoMS Project:**

## **A Web-based Initiative for Teaching and Learning Materials Science**

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# Talk Outline

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- **History, Scope & Objectives**
- **Library of Micrographs**
- **Library of Teaching & Learning Packages**

# Background to the Initiative

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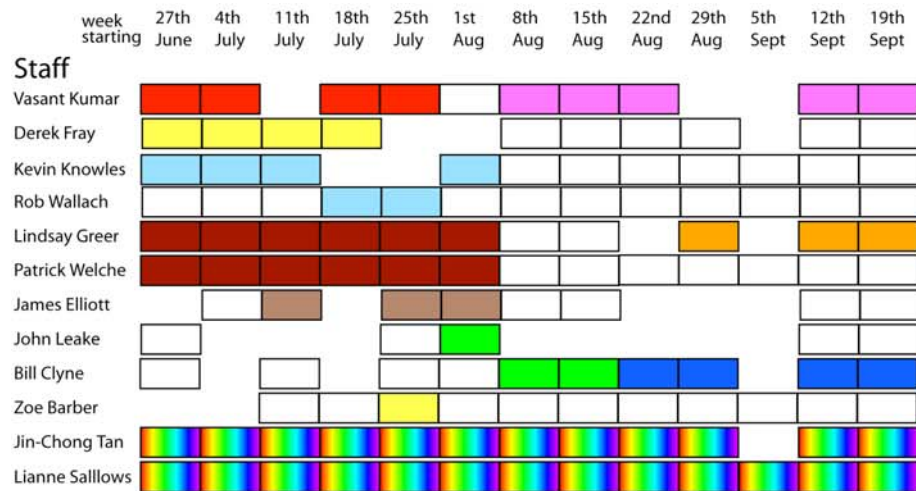
- **Origins in MATTER project (MATerials Tertiary Educational Resources), which started around 1990: ongoing links with MATTER at Liverpool (Subject Centre)**
- **Evolving technical situation created various challenges throughout 1990's, concerning programming languages, platforms & delivery mode: now 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

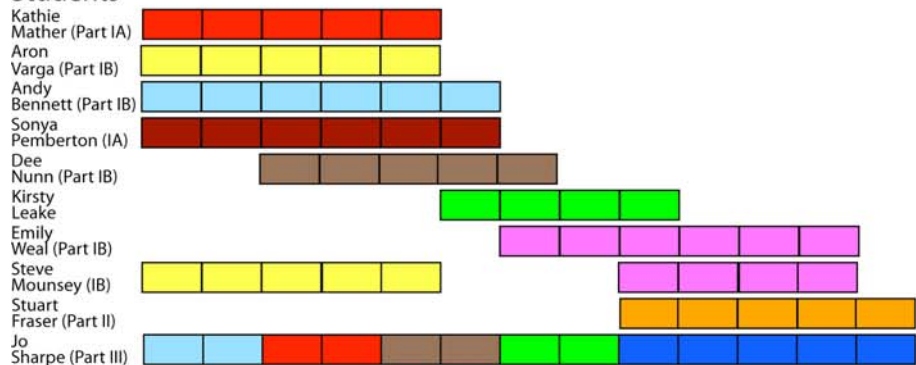
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- **Consolidation of Micrograph Library**
- **Expansion of Library of Teaching & Learning Packages, partly via regular “Summer School” of Student Participation in Cambridge**
- **Maintenance of Website, Correspondence with Contributors, Feedback from Users etc**
- **Liaison with UK Government-funded Subject Centres - in Materials Science (Liverpool) & Engineering (Loughborough)**

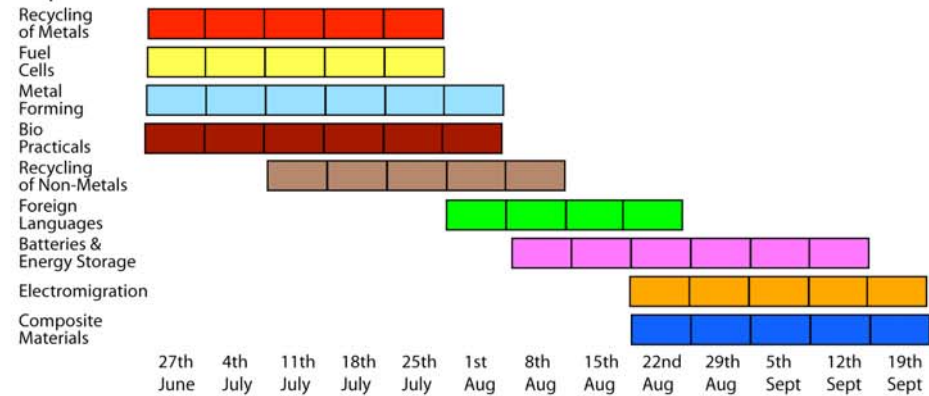
# Summer School Timetable, 2005



## Students



## Topics



# Talk Outline

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# The Micrograph Library

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- 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

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



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# The TLP Library

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- **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

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- **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**