

## Guest editorial

This special issue of Cement and Concrete Research contains selected papers from the 10th Euroseminar on Microscopy Applied to Building Materials, that was held at the University of Paisley, Scotland from June 21st to 25th 2005. Despite its somewhat cumbersome title, the Euroseminar, which takes place every second year, is firmly recognised and valued by a wide constituency of researchers and practitioners who use microscopy to characterize materials in support of research and practice. The papers presented here represent a sub-set of the complete output; those contributions relating to cementitious materials, aggregates, mortars and renders. To complete an overview of the full conference content, readers are referred to an accompanying special issue that will appear, in due course, in Elsevier's sister journal "Materials Characterization". That Special Issue will contain examples of microscopy applied to archaeological, historic and non-cementitious materials.

The wide range of research and application presented at the Euroseminar are methodologically united by microscopy and allied characterisation techniques. This means that workers find something of interest, or at least to comprehend, in most contributions, even those on topics far from their own expertise. This exchange of application and technique is a very valuable part of the Euroseminar culture, encouraging contributors to think beyond their own specialism, and to perhaps discover something of value that can be transferred. This is a challenge, but it is also what makes the event one of the most valuable in the construction materials analysis calendar.

Microscopy continues to prove itself as a powerful, arguably indispensable, tool for the analysis of material properties. The examples presented here represent a fair spread across the applications of microscopy; utilizing optical, electron and X-ray techniques, for phase identification and, above all, the unraveling of the spatial distribution and interactions between primary and secondary phases. The contributions demonstrate the continuing relevance of petrography to the study of materials, in two ways;

- Research driven, complex and following the development of ever improved and sophisticated technologies for imaging. Microscopy is an essential part of materials science, aimed at understanding the fundamental components, down to the

atomic scale, that control properties, and permit modeling and prediction.

- Practice driven, answering real-world questions, for example for materials quality control and to develop repair and conservation strategies. This is an extremely important economic activity. Applications can range from concrete durability to materials characterisation and provenance determination in cultural and historic building materials. This is often pursued using cost effective optical methods, though applications are increasingly benefiting from the adoption of more advanced technology.

The need for a continuing flow of practitioners skilled in petrographic analysis, who are most often (perhaps necessarily) geologically trained, is also evident for the future. However, it has become clear that many of the specialist skills exhibited by the Euroseminar participants are in decline, in many locations. This is despite the clear relevance of the microscopic methodology to the analysis of problems in the construction materials field. Hopefully the Euroseminar can continue to stimulate activity, and drive practitioners on to the best application of their skills and the passing on of these to others.

It is a great honour to be able to present this special issue in what is the foremost journal for research relating to cement and concrete. It is a recognition of the continuing and developing importance of the Euroseminar. I would like to thank Karen Scrivener and all at Elsevier, on behalf of the Euroseminar community and the workers represented here, for this opportunity to present this special issue, and for their hard work in preparing it for publication. Thanks also go to my co-editors Alick Leslie and Joan Walsh, and to the wide range of support staff at the University of Paisley who made the event possible.

Finally, a quick advert for the next Euroseminar: the 11th EMABM will take place between the 5th and 9th of June 2007, hosted by the Department of Geology at the University of Porto, Portugal (see [www.fc.up.pt/11thEMABM/](http://www.fc.up.pt/11thEMABM/) for more information). I hope to meet many of you there.

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