



9th EUROSEMINAR ON MICROSCOPY APPLIED TO BUILDING MATERIALS

9-12 SEPTEMBER 2003, TRONDHEIM, NORWAY

PROCEEDINGS

**EXTENDED ABSTRACTS
&
CD-ROM**

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PREFACE

These Proceedings comprise the consolidated contributions to the 9th Euroseminar on Microscopy Applied to Building Materials (EMABM), held in the Radisson SAS Royal Garden Hotel in Trondheim, Norway, on September 9-12, 2003.

The Proceedings of this 9th EMABM are different in two ways; the one most obvious to the eye being its look-and-feel. Compared to previous editions, you may think of these Proceedings as a 'booklet' rather than a 'volume'. However, this smaller tome with extended abstracts is easier to handle during technical sessions while taking notes than a heavy 500+ page book with full papers. These latter are published on the enclosed CD, are keyword-searchable and printable, and can be studied back home in the convenience of your own office. Second, all of the contributions in these Proceedings have been peer reviewed by a board of preselected reviewers, a prime for the Euroseminar, and adding to its prestige.

A trend towards microscopic techniques other than petrography had already been noticed at the 7th EMABM in 1999, which trend now seems to have grown more popular. At this 9th EMABM, we see more examples of the miniaturization of initially macro-scale methods, together with the automation and digitization of traditionally analogue technique. This appears to reflect the more general trend in science of improved access to more sophisticated instrumentation, but it also illustrates the awareness of building materials researchers that an interdisciplinary approach is essential to understanding the vast range of mutually interacting processes, mechanisms and building materials, independent of scale.

This is an exciting time to do building materials research, with the emergence of new methods and instrumentation to investigate materials and processes, potentially opening the way for new and refreshing viewpoints on old well-known themes. The editors of Scientific American put it science in general in a wider perspective in their editorial "*In science we trust*" from December 2002 (pg 4):

"All scientific knowledge is provisional. [...] This is not a weakness of science, this is its glory."

Be part of the wider perspective! Enjoy the 9th Euroseminar, enjoy the Proceedings!

Maarten A.T.M. Broekmans - Chief Editor
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INTRODUCTION

This Euroseminar on Microscopy Applied to Building Materials (EMABM) is the ninth consecutive in a biennial series, the previous edition in Athens, Greece 2001, September 4-7. This 9th EMABM is held in the Radisson SAS Royal Garden Hotel in Trondheim, Norway, on September 9-12, 2003. Its main objective is, and always has been, to promote the use of microscopy as a tool to study building materials, to discuss recent advances, to share views and experiences among experts working with advanced and applied research, and to encourage newcomers in the discipline.

Main themes are microscopy techniques and petrographic analytical methods for the characterization of natural stone and raw materials for building and construction, concrete, masonry, tiles, rendering, repair materials, as well as weathering and deterioration of building materials and structures. The EMABM represents the most important international forum for microscopy and petrography applied to all types of modern and historical building materials.

Another premiere for the EMABM are workshops on specialized themes at the EMABM. The EU-funded PARTNER-project presents results from testing European potentially alkali-reactive aggregates. Two other workshops, chaired by invited internationally renowned experts within each field, deal with technical and organizing issues on 'rehabilitation of historical buildings and materials', and 'sample extraction and preparation for petrographic and geochemical analysis', respectively. Finally, delegates are encouraged to bring their own thin sections and present them for the audience in a two-hour session.

The Organizing Committee of the 9th EMABM went through numerous difficulties and adversities arranging this episode but with good will, obstinacy and hard work we hope to have succeeded to make this 9th Euroseminar a fruitful experience for all attending. We would like to take the opportunity to thank all of our dedicated and enthusiastic colleagues who have contributed. We also gratefully acknowledge the support from the Geological Survey of Norway (NGU), Norwegian Concrete & Aggregate Laboratory Ltd. (NBTL), Norwegian University for Science & Technology (NTNU), the Church Council of the City of Bergen (BKF), the Restoration Workshop of Nidaros Cathedral (NDR), cement producer NORCEM, Norwegian Zeiss-representative Bergman A/S, Blackwell Publishing, and Trondheim Municipality.

Viggo Jensen, Chairman
Trondheim, September 2003

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