

# Preface

This book arose from the presentations given at the international workshop held in Óbidos, 26–29 September 2010, as a result of a joint initiative of the Centro Internacional de Matemática and the Raising Public Awareness (RPA) committee of the European Mathematical Society (EMS). The objective was to provide a forum for general reflection with an international mix of experts on building the image of mathematics, ten years after the World Mathematical Year 2000 (WMY 2000). Óbidos, a charming town situated one hour by car to the north of Lisbon, Portugal, was also the site of the re-creation in the year 2000 of the international mathematics exhibition “Beyond the Third Dimension” (<http://alem3d.obidos.org/en/>) and a meeting of the EMS WMY2000 Committee.

The opening of the workshop was also a public “mathematical afternoon” organised by the Portuguese Mathematical Society (SPM) in cooperation with the town of Óbidos. At this event mathematical films and lectures to the general public were presented. The first lecture was given by H. Leitão, from the University of Lisbon, on mathematics in the “Age of Discoveries”, and the second one by G.-M. Greuel, the current president of ERCOM (the EMS committee of the European Research Centres on Mathematics), on the topic “Mathematics between Research, Application and Communication”, which text is included in this book.

During the Óbidos public awareness event, the website [www.mathematics-in-europe.eu](http://www.mathematics-in-europe.eu) of the EMS was officially launched and an itinerant mathematical exhibition, *Medir o Tempo, o Mundo, o Mar*, on the use of geometry to measure the universe and help astronomical navigation, jointly organised by the SPM and the Museum of Science of the University of Lisbon, took place at a local art gallery. This book aims to encourage and inspire action to raise the public awareness of the importance of mathematical sciences for contemporary society through a cultural and historical perspective, and to provide mathematical societies, in Europe and in the world, with ideas and details of concerted actions with other national or international organisations and societies with regards to raising the public awareness of science and technology and other important areas of society that have a strong mathematical component. The book is divided into four parts:

- National Experiences
- Exhibitions and Mathematical Museums
- Popularisation Activities
- Popularisation: Why and How?

**National Experiences** During and after the World Mathematical Year 2000 several European countries started extensive RPA projects in mathematics. In this part of our book activities in the following countries are described: the UK (John D. Barrow and Robin Wilson), France (Jean-Pierre Bourguignon), Germany (an article about the German website [www.mathematik.de](http://www.mathematik.de) by Wolfram Koepf and another about the German Mathematical Year 2008 by Günter M. Ziegler and Thomas Vogt), the United States (Reinhard Laubenbacher), Portugal (Renata Ramalho and Nuno Crato) and Spain (Raúl Ibáñez Torres).

**Exhibitions and Mathematical Museums** Over the last few years there have been a number of (temporary or permanent) mathematical exhibitions. The experiences of the organisers are given: How can one present mathematics successfully? Ehrhard Behrends (the exhibition “Mathema—Is Mathematics the Language of Nature?” during the German Mathematical Year 2008), Albrecht Beutelspacher (the “Mathematikum” in Gießen), Manuel Arala Chaves (“Atractor”), Ana Eiró, Suzana Nápoles, Jorge Nuno Silva and José Francisco Rodrigues (exhibitions in collaboration with the Museum of Science in Lisbon), Enrico Giusti (“Il Giardino di Archimede” in Florence) and Andreas Daniel Matt (“IMAGINARY”).

**Popularisation Activities** The large variety of RPA projects that happened in various countries was really impressive: films, popular websites, RPA using computer games or the history of mathematics. Surprisingly most of these activities were unknown to the majority of participants until this workshop. A number of them are described in more detail here: Ehrhard Behrends describing the international mathematical popular website [www.mathematics-in-europe.eu](http://www.mathematics-in-europe.eu); Franka Brueckler on the problem of how to organise RPA projects with a low budget; Mireille Chaleyat-Maurel on her experiences during the Word Mathematical Year, 2000; Krzysztof Ciesielski on how to explain “strange” geometries to an audience of non-mathematicians; João Fernandes, Carlos Fiolhais and Carlota Simões on various projects at the University of Coimbra; Steen Markvorsen on his experiences of an event that had a large impact on raising the public awareness of mathematics; Yasser Omar on RPA projects in developing countries; and John M. Sullivan on the role of pictures in mathematics, art and RPA activities.

**Popularisation: Why and How?** A number of talks were of a more “fundamental” character. This part of the book starts with an article by F. Thomas Bruss, who explains why it is of fundamental importance to improve the image of mathematics. Then Jorge Buescu and José Francisco Rodrigues stress that it is necessary to present “useful” mathematics to convince people that it is important. Barry Cipra asks what advice Martin Gardner would have given us for creating successful popularisation

projects. Maria Dedó also starts her contribution with a question: “How important is rigour in communicating maths?” In Gert-Martin Greuel’s article the focus is whether it is possible or necessary to impart an understanding of mathematics to the general public. Vagn Lundsgaard Hansen advises us to keep mathematical awareness alive, and in the last article António Machiavelo explains why the question of what mathematics really is and what it exactly deals with can only be satisfactorily understood within an evolutionary perspective.

The editors and organisers of the workshop wish to express their gratitude to the Centro Internacional de Matemática (CIM), the Portuguese Mathematical Society (SPM), the town of Óbidos, the Portuguese Fundação para a Ciência e Tecnologia, the Fundação Calouste Gulbenkian, the Munchen RE and the Portuguese mathematics research centres, CMAF/U Lisbon and CEMAPRE/TU Lisbon for their support.

Berlin, Germany

Lisbon, Portugal

Lisbon, Portugal

Ehrhard Behrends

Nuno Crato

José Francisco Rodrigues

Raising Public Awareness of Mathematics

Behrends, E.; Crato, N.; Rodrigues, J.F. (Eds.)

2012, XV, 404 p. 292 illus., 254 illus. in color., Softcover

ISBN: 978-3-642-25709-4