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Preface

We are pleased to bring to you full papers submitted at the Fifth International Conference on the Scientific and Clinical Applications of Magnetic Carriers that was held in the beautiful city of Lyon, France, from May 20 to 22, 2004. The meeting was the fifth in a series of biennial gatherings of scientists and users interested in the synthesis, properties and biomedical applications of magnetic microparticles. The first of these meetings started in Rostock, Germany (1996), and continued in Cleveland, USA (1998), Rostock (2000), and Tallahassee, USA (2002). The conference was then held in Lyon by the tireless efforts of the local scientist and business entrepreneur Dr. Stephane Legastelois and his coworkers. Conference participants took away impressions of a highly dynamic and diverse research community in Lyon and nearby Grenoble, and of a wonderful city that boasts of a large and well-preserved historic center, alive with restaurants, cafes and museums.

The conference was the largest so far, with 273 participants from 36 countries. We continued with the tradition of serial podium and poster presentation sessions to provide the opportunity for maximum participation. The invited tutorial lectures were given by distinguished Professor Jim H.P. Watson from the Department of Physics and Astronomy, University of Southampton, UK, and focused on the basics and applications of high-gradient magnetic separation. The invited talks provided snapshots of the rapidly evolving field of magnetic carriers, from magnetic tweezers (Prof. Viovy, Institut Curie, Paris, France) to magnetic biochips (Dr. Megens, Philips Research Laboratories, Eindhoven, The Netherlands) to targeted hyperthermia (Prof. Jordan, Charité Hospital,

Berlin, Germany) to molecular imaging and targeted drug delivery (Prof. Lanza, Washington University, St. Louis, Missouri, USA). The lively discussions during question and answer periods and poster sessions often spilled over into lunch breaks and postlecture activities. One such activity was the conference dinner that continued the tradition of a night out on the water—this time with a boat trip on the rivers Rhône and Saône.

Conference participants had the opportunity to visit the renowned High Magnetic Field Laboratory in Grenoble, a short bus ride away from the conference venue. The tour of the lab provided an overview of the latest capabilities in high magnetic field technology as well as some history dating back to the time of Paul Langevin and Louis Néel, all in the magnificent setting of the high Alps.

This volume represents the diversity of contributions to the conference. Looking back at the first conference in Rostock it is interesting to see the evolution and maturation of the magnetic carriers field. One particular example is the combination of microfabrication technology with the capabilities of the monodisperse magnetic microspheres in applications to micromanipulation and detection for molecular diagnostics. Another is the improved targeted therapeutics and imaging capabilities afforded by the improved properties of the latest types of monodisperse magnetic microspheres. It is also exciting to see new ideas and directions stemming from the unique properties of magnetic microcarriers, applications of which may not yet be possible to realize, but that nevertheless provide for an interesting physics and materials science. We hope that the reader will be as fascinated and excited by the publications included in this volume as we are.

For the latest information about activities related to the magnetic carriers, the reader should visit the website <http://www.magneticmicrosphere.com>. This website provides information about the next, the sixth International Conference on the Scientific and Clinical Applications of Magnetic Carriers which will be held in Krems, Austria, from May 17 to 20, 2006. We hope to see you there.

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