Foreword

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Attended by some ninety mathematicians from all continents, a week-long *Workshop on Category Theory* was held at the University of Coimbra (Portugal) in July 2012 to celebrate the sixtieth birthday of Professor George Janelidze of the University of Cape Town. This volume constitutes the proceedings of the conference which were open for non-attendees to submit contributions.

George Janelidze's career as a publishing research mathematician started in 1974 when, following the completion of his *Diploma* at Tbilisi State University, his first scientific article appeared on *Galois theory in categories with inclusions* (in Russian). This was the beginning of the mathematical field that he has influenced the most: Categorical Galois Theory (CGT). He established its pillars in his 1978 PhD thesis and in some subsequent publications, providing inter alia a categorical proof of Magid's Theorem. This work became widely known in the West only after it had been actively promoted by no one less esteemed than Saunders Mac Lane, leading to George's first major English-language publication: *Pure Galois theory in categories* (*Journal of Algebra*, 1990). George's book with Borceux on *Galois Theories* (Cambridge 2001) has become the standard reference for CGT and also points to the central

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role of Grothendieck's Descent Theory (GDT) incorporating the intimate connections with CGT as well as with sheaf and cohomology theory.

Through his leadership role in the co-organization of conferences and workshops, George also strongly promoted the important role of monads in GDT as first revealed by Bénabou and Roubaud. In particular, the meetings held at Oberwolfach (1995) and at the Fields Institute in Toronto (2002) deserve special mentioning and are well documented by published proceedings.

Alongside his work on Galois and descent theory his contributions to categorical algebra stand out, especially his frequently cited works on semi-abelian categories and on commutator theory. Furthermore, George continues to make substantial contributions to the development of general category theory. He has deepened the understanding of many classical constructions and results in general algebra, ring theory, homological algebra and algebraic topology via the introduction and the study of suitable internal categorical structures. In recognition of his work he was elected Academician of the Georgian Academy of Science in 2013.

The high level of appreciation that George Janelidze's ideas and work enjoy is, however, not solely founded in his published papers and books. Perhaps equally appreciated is his continuous strong engagement with the broader categorical research community over the last three decades. During visiting appointments and extended stays at many institutions across the Globe he initiated numerous fruitful scientific collaborative projects. He generously shares his ideas and freely gives his time not only to his hosts but also to their students, who invariably appreciate his formidable gift of reducing apparently complicated matters to simplifying basic principles. In fact, the majority of the ten PhD theses completed to date under his supervision were initiated during visiting appointments. He is also a frequent contributor to electronic discussion and communication forums, sharing freely his rich general mathematical knowledge, offering solutions to posted problems, and engaging passionately in discussions on general research directions and values.

This volume contains a large number of research articles covering a broad range of categorical topics. As guest editors of this volume we are very grateful to Robert Lowen for granting us considerable space in *Applied Categorical Structures* for the publication of these proceedings. We also thank all referees for their careful reading of the articles and their many constructive suggestions to the authors. Finally we use the occasion of the appearance of the proceedings to express our gratitude to the conference organizers for their seamless work and the Center of Mathematics at the University of Coimbra for its support.