

# Preface

The American Concrete Institute sponsored the First International Symposium of the Fiber-Reinforced Polymer Reinforcement for Reinforced Concrete Structures (FRPRCS) at the 1993 ACI Spring Convention in Vancouver, British Columbia, Canada. At this inaugural event, the international research community agreed to repeat these symposia every second year, rotating venues on various continents. Since 1993, the symposia have been held in Ghent, Belgium (1995); Sapporo, Japan (1997); Baltimore, Maryland, USA (1999); Cambridge, England (2001); and Singapore (2003). This volume represents the seventh in the symposium series, held in Kansas City, Missouri, USA, November 6-9, 2005.

The FRPRCS-7 Proceedings volume is divided into chapters that correspond to the sessions presented at the symposium, including a poster session representing a broad array of relevant research. The reader will find chapters devoted to materials characterization, masonry, bond, external strengthening, serviceability, design and behavior of members internally reinforced with FRP composites, FRP used for confinement, field applications, extreme events, and durability. The international flavor of research is also apparent in this volume, with papers representing work from 19 different countries on five continents.

Throughout its 12-year history, the symposium series has seen an increase in the sophistication of the application of FRP for reinforcing concrete and masonry as its commonplace use has increased on a global basis. This volume certainly continues and then expands this trend. The technical papers not only emphasize the experimental, analytical, and numerical validations of using FRP composites for externally strengthening or internally reinforcing concrete structures, but most are aimed at providing the insight needed for improving existing design guidelines. Several papers discuss the proposed design guidelines for deflections, shear strength, and reinforcing masonry, which practitioners should find especially useful. New applications are also featured, including studies and design equations for the use of near-surface-mounted FRP products, use of steel-reinforced polymer for reinforcing concrete, and the use of FRP to retrofit structures for blast mitigation. FRP composites performance is presented in chapters on durability and extreme events. Durability analysis performed on older field installations provides confidence and a basis for long-term service. It is our hope that future FRPRCS symposia will feature more papers where durability analyses are performed on aging field applications so that positive long-term performance data can lead to greater acceptance and use of FRP composites technology by practitioners.

A work of this magnitude could not be put together without the help, dedication, and cooperation of numerous people. First, we would like to thank the authors for meeting very tight deadlines for submissions, providing an opportunity for FRPRCS-7 to showcase the most current work possible at the symposium. Second, the International Scientific Steering Committee, consisting of many distinguished international

researchers, including chairs of past FRPRCS symposia and key international representatives, was instrumental in attracting a large number of high-quality submissions to the symposium. This committee signifies the global expansion and advancement of FRP composites research and technology.

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