

Preface

In recent years “Performance, Protection and Strengthening of Structures under Extreme Loading” has received special attention as a result of numerous natural disasters, terrorism threats and aging related deterioration of infrastructure. Until early 2000’s, there were very few forums on this subject theme to exchange ideas and research results. The “Performance, Protection & Strengthening of Structures under Extreme Loading” specialized workshop series was conceived in the early 2000’s and bore fruit in 2007 when the “First PROTECT workshop” was organized in Whistler, BC, Canada. This was followed by “2nd, 3rd, and 4th International PROTECT workshops” that were held in Japan, Switzerland and India in 2009, 2011 and 2013 respectively.

The main mission of PROTECT specialized workshop is to provide an opportunity for researchers, practitioners and engineers, specializing in structural, material performance, extreme loading, and structural management and protection fields, to share their research, technology and expertise with their peers at an international forum. Following the great success of previous workshops, Michigan State University was selected to organize the “5th International Workshop on Performance, Protection & Strengthening of Structures under Extreme Loading” at East Lansing, MI.

The response to call for papers for PROTECT2015 was overwhelming and we received more than 170 abstracts for this year’s workshop. Most of the submitted abstracts are of high quality and are from all regions of the world. Based on the review of each abstract by at least three reviewers, selected from the technical committee, the authors were invited to submit full papers for publication in the Proceedings. In response to this, 119 papers were submitted for publication in the workshop Proceedings. All papers were reviewed and the authors were invited to finalize the papers based on the review comments. The finalized papers are included in this Proceedings.

The papers contained in this Proceedings draw on the experience and special knowledge of academics and the practitioners, both in the public and private sectors, from 25 countries, spread over 5 continents: Asia, Australia, Europe, North America and South America. These papers provide greater insight into material behavior and structural performance under extreme loading conditions such as fire, impact, blast, collision, earthquake, tsunami, etc. The papers in the proceedings are grouped under:

- Construction Materials—Properties and Performance
- Structural Performance—General
- Structural Performance—Earthquake, Impact, and Blast
- Structural Performance—Fire

We hope this Proceedings will remain one of the authoritative documents on this topic for many years to come and will generate significant discussion in the community. We anticipate that these papers will serve as a catalyst in initiating a meaningful dialogue amongst the various stakeholders, and result in development of innovative solutions based on cross-fertilization of ideas. Finally, we foresee that these papers will set the directions for future research, advance our state-of-the-art, and perhaps best of all, make our structures safer for the occupants when a calamity strikes.

We would like to take this opportunity to thank the authors who have so generously given their time to ensure that the papers included in the Proceedings are of the highest quality, stand the rigorous scrutiny of scientific accuracy, depict sound logic and represent a true advancement in our state-of-the-art. We would like to thank members of the “Technical Committee” for reviewing the abstracts within an incredibly short period of time. Our thanks also to “International Advisory Committee” for promoting the workshop and encouraging participation in PROTECT 2015. Our sincere appreciation to “PROTECT Steering Committee” for providing direction to the successful organization of this conference. Special acknowledgement to the staff and graduate students in the Department of Civil and Environmental Engineering at Michigan State University, who worked tirelessly to see PROTECT2015 initiative succeed. Thanks to generous sponsors for supporting the conference and supporting organizations for promoting the conference among the engineering community. Last but not the least, special thanks to all the authors and the participants of the conference for making the “Fifth International Workshop on Performance, Protection and Strengthening of Structures under Extreme Loading” a great success.

Venkatesh Kumar Kodur
Chairman
Organizing Committee

Nemkumar Banthia
Chairman
Steering Committee