Preface

Currently, two schemes of detonation combustion attract most attention of combustion and propulsion experts: one of them implies fuel combustion in periodic detonation waves traveling along a combustion chamber (Pulsed Detonation Engine, PDE), while another deals with fuel conversion in detonation waves, continuously circulating in the tangential direction across a combustion chamber (Continuous Detonation Engine, CDE). Both schemes are considered promising for jet engines of new generation and have been the main subjects of nine biannual International Colloquia on Pulsed and Continuous Detonations (ICPCD) we organize since 1998. The important feature of the Colloquia is that they are jointly sponsored by the U.S. Office of Naval Research and the Russian Foundation for Basic Research. This book is addressed to those who are interested in recent accomplishments in basic and applied research on PDEs and CDEs and their numerous design concepts and performances.

Similar to our efforts with previous Colloquia, we have endeavored to revise, thoroughly edit, and publish in this volume the condensed articles presented at the Colloquia held in 2010, 2012, and 2014. The book provides an overview of the state-of-the-art in gaseous, heterogeneous and condensed-phase detonations and their application to propulsion and other fields of human activities. Extended up-to-date references as well as authors' affiliations are added so that further information can be readily obtained. To make reading more convenient, an author index is provided at the end of the book.

The Colloquium and this volume are the outcome of hard work of several persons, and we highly appreciate their valuable contributions. In particular, we acknowledge the assistance given at various stages by Ms. Olga Frolova. We thank the staff of TORUS PRESS for their excellent service in producing the volume and organizing the conferences.

Special thanks are due to Academician A. A. Berlin and late Academician A. G. Merzhanov for their kindly and persistent support of the Colloquium. We thank the authors for their time and effort in preparing their papers and participation in the Colloquium and the sponsoring agencies for their financial support, without which this endeavor would not be possible. We do hope that this volume will serve as a useful addition to the literature on detonation.

December 2014

Gabriel Roy
Sergey Frolov