

# Preface

In the period from April 22 to 26, 2024, the regular 14th International Colloquium on Pulsed and Continuous Detonations (ICPCD) dedicated to the 120th birthday anniversary of Yu. B. Khariton and the 110th birthday anniversary of Ya. B. Zel'dovich, founders of the modern theory of combustion and detonation, was held in St. Petersburg, Russia. This is a biannual representative conference initially dedicated to the issues of transient deflagration and detonation control in relation to advanced jet propulsion systems for all environments based on the thermodynamic Zel'dovich cycle with detonative combustion of chemical fuel. Over time, the scope of the conference expanded to include control of fuel components mixing and reactivity as well as numerous other practical applications of fast deflagrations and detonations. For example, highly attractive new practical applications of detonation for energy-efficient and environmentally friendly steam – carbon dioxide gasification of organic wastes and for the conversion of combustible hydrocarbon gases into hydrogen and carbon black were widely discussed at this colloquium.

As at all previous colloquia, we tried to carefully edit and publish extended abstracts of the reports presented at ICPCD-2024. All material in the book is divided into three Chapters: (i) Mixing, Combustion, and Deflagration-to-Detonation Transition; (ii) Detonation; and (iii) Application of Pulsed and Continuous Deflagrations and Detonations. In addition to novel scientific results, the published materials provide brief overviews of the current state of the research issues with references to the up-to-date literature as well as detailed postal and e-mail addresses of the authors to help the reader obtain additional information. For convenience, an author's index is provided at the end of the book. The book can be considered as a reference manual for scientists and engineers working in the field of physics and chemistry of combustion and explosion as well as graduate students studying relevant disciplines.

The organization and conduct of the Colloquium and the publication of this volume are the result of the hard work of several people to whom I express my deepest gratitude.

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*Sergey M. Frolov*