

# Preface

The triboluminescence phenomenon, since its first recorded discovery in 1605, has enjoyed extensive studies targeted at understanding the underlying mechanism, discovery, and synthesis of new materials, their characterization, and applications in civil and aerospace engineering systems. Significant progress has been made in these areas since the last text that was written over 35 years ago. The need to concisely document the significant progress that has been made in this field in the last 35 years necessitated this book.

The book expounds on progress made over the last 35 years in the theory, synthesis, and application of triboluminescence for creating smart structures. It presents in detail research into the utilization of the triboluminescent properties of certain crystals as new sensor systems for smart engineering structures. These triboluminescence-based sensor systems have the potential to enable wireless, in situ, real-time and distributed (WIRD) damage, stress, and impact sensing in civil and aerospace systems like bridges, aircrafts, space crafts, and wind blades.

Furthermore, the book is divided into three sections according to the covered areas which are the theory, synthesis, and application of the triboluminescence phenomenon. In order to ensure depth and breadth in the coverage of these key areas, the editors worked with leading experts in the field from all over the world to author the very insightful chapters in the book. The book is written to present information on triboluminescence relevant to engineers and scientists across a range of fields, including aerospace, defense, civil infrastructure, and wind energy. The goal is to facilitate readers' understanding with concise treatments of the topics covered in the text.

In conclusion, we would like to express our profound gratitude to all our contributing authors for the great depth and expertise they have brought to this book. You have helped in documenting the various advances made in the field for the benefits of the present and coming generations. Thanks for all the hard work and

timely submission of the manuscripts. We are particularly grateful to our publishing team at Springer. Special thanks to Michael Luby and Ms. Brinda Megasyamalan for their support, patience, and guidance throughout the project.

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March, 2016

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Triboluminescence

Theory, Synthesis, and Application

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W.A. (Eds.)

2016, VIII, 454 p. 335 illus., 235 illus. in color.,

Hardcover

ISBN: 978-3-319-38841-0