

Preface

Gas plasma is the fourth state of matter, alongside solid, liquid and gas. There are many naturally occurring events and man-made products related to gas plasma including aurora and thunderstorms, and high-intensity discharge (HID) headlamp bulbs, oxonizers, semiconductors and solar battery panels. As a result, gas plasma technology is increasingly important in our life.

Among the various technologies, particular attention should be paid to the use of gas plasma in sterilization and disinfection. Gas plasma treatment has helped to minimize the contamination of medical instruments with infectious pathogens and toxins and, thus, the prevention of hospital-acquired infection.

The purpose of this book is to bring together information on the current status and future prospects of the state-of-art physical technique of gas plasma sterilization. The chapters cover basic information on this method of sterilization, applications of gas plasma technology to the inactivation of toxins and pathogens, possible mechanisms of gas plasma sterilization, and verification and validation of the sterilization efficiency of gas plasma, as well as discussing the challenges, limitations, and advantages of gas plasma sterilization, as well as future research perspectives.

This book will provide a standard reference and indispensable roadmap of gas plasma sterilization for students, engineers, and laboratory scientists. I hope that readers will enjoy this book, obtain useful information for their own research, and be inspired by new ideas for future research on gas plasma sterilization.

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