

Preface

Fiber optic sensing technology is perfectly established nowadays and provides a range of solutions for an increasing gamut of applications in the areas ranging from structural health monitoring to biophotonic sensing, to name a few. New variety of fibers together with the development of nanostructured materials and the scientific advances in physics and chemistry have led us to discover new phenomenon stimulating new sensor developments.

In this book, we will see more interdisciplinary topics, an engineering maturity and novel technologies as even before induced by the diversity of applications. New ideas and concepts are proposed and tested, not only for various traditional parameters such as strain, temperature, or pressure, but also for new concepts, applications, and phenomenon.

Among the concepts, extended infrared sensors are making its appearance, and we have included a couple of chapters such as THz and Photonic Crystal Structures based sensing in this regard.

Another important aspect is the resonance generated when using thin films together with optical fibers. We are talking about surface plasmon resonances, lossy mode resonances, long-range surface exciton polariton, etc. These new phenomena for sensing purposes have an enormous potential.

We have tried to cover the main application subjects, such as power engineering, chemical engineering, bioengineering, environmental measurements, etc. Almost certainly, the application fields of optical fiber sensors will be extended and more commercial successes will be obtained in the near future.

Taking into account the geographic representation of the selected authors, with the underlying benefits in terms of different viewpoints, different ways of understanding, etc, we believe this will enrich the reading much more. In any case, we hope that the readers will find this book useful and interesting for their research works.

We would not like to finish without thanking all the authors for their effort and brilliant contribution to this book.

Pamplona, Spain

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Fiber Optic Sensors

Current Status and Future Possibilities

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