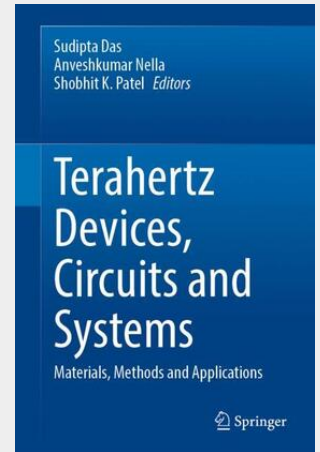


# Terahertz Devices, Circuits and Systems

Materials, Methods and Applications

This book is aimed to bring the emerging application aspects of THz technology and various modules used for its successful realization. It gathers scientific technological novelties and advancements already developed or under development in the academic and research communities. This book focuses on recent advances, different research issues in terahertz technology and would also seek out theoretical, methodological, well-established and validated empirical work dealing with these different topics. In particular, this textbook covers design considerations and current trends of THz antennas and antenna arrays to deal with the transmission and reception of THz EM waves. It also presents a discussion on metamaterial structures, meta-surfaces, and absorbers to be used for some kind of sensing and detection applications. Furthermore, it reports on THz wireless communication aspects, 6G network issues and challenges, advantages and disadvantages, generation and detection of THz waves, Signal and Communication Processing for THz communication, reconfigurable low-noise amplifier (LNA) design, III-Nitride HEMTs for THz Applications, photonic crystal fiber for sensing applications, THz Design Variable Estimation by Deep Optimization, and THz Imaging issues. Once the readers finish studying this book then they will learn about the importance of THz technology, advancement in the field, applications, THz modules like antennas, MIMO and DRAs, communication aspects, LNAs, generation of THz waves, etc and future scope. It also leads to enhancement in their knowledge in THz technology, gives a platform to future technology and novel applications realization.

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**106,99 €**

99,99 € (zzgl. MwSt.)

*Lieferfrist: bis zu 10 Tage*

**Artikelnummer:** 9789811941047

**Medium:** Buch

**ISBN:** 978-981-19-4104-7

**Verlag:** Springer Nature Singapore

**Erscheinungstermin:** 27.09.2022

**Sprache(n):** Englisch

**Auflage:** 1. Auflage 2022

**Produktform:** Gebunden

**Gewicht:** 718 g

**Seiten:** 317

**Format (B x H):** 160 x 241 mm

