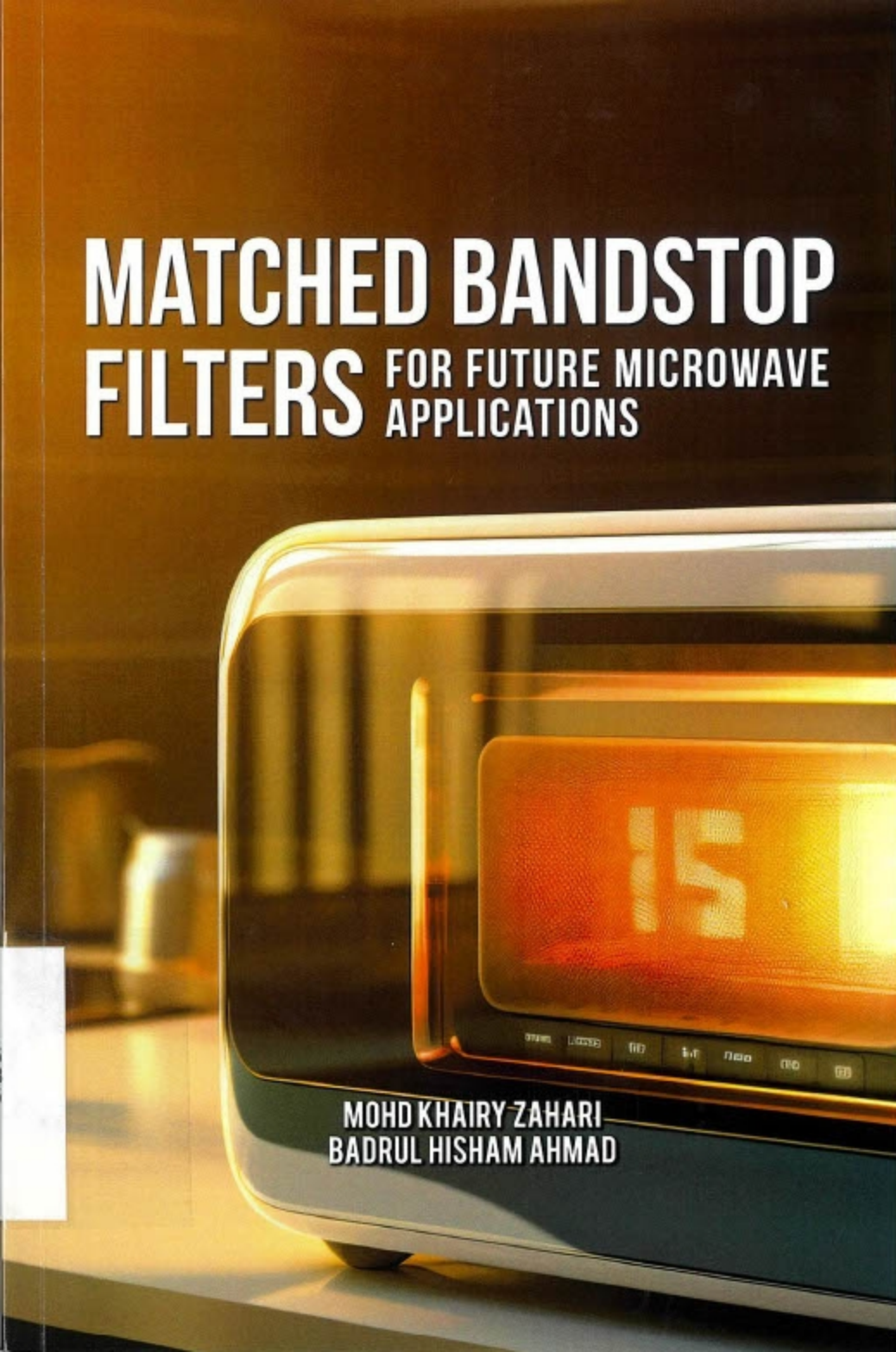
MATCHED BANDSTOP FILTERS FOR FUTURE MICROWAVE APPLICATIONS



MOHD KHAIRY ZAHARI
BADRUL HISHAM AHMAD

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This book explores into the design and implementation of advanced microwave filters, with a particular focus on switchable absorptive bandstop-to-bandpass filters for future communication systems. These filters aim to address critical challenges in RF and microwave technologies, such as improving selectivity, compactness, and adaptability for cognitive radio systems. The authors propose innovative designs that leverage low-Q lossy resonators combined with high-Q absorptive bandstop filters, providing a robust solution for achieving compact size and high performance.

The work systematically explores different resonator topologies, including T-shaped, dual-mode ring, stepped-impedance, and parallel-coupled resonators, to achieve switchable responses between bandstop and bandpass modes. The designs incorporate PIN diode switches for dynamic response tuning, ensuring minimal insertion loss in bandpass mode and strong attenuation in bandstop mode. The filters' compact designs are based on planar microstrip technology, offering cost-effective and scalable solutions for modern wireless communication, radar, and military applications.

MOHD KHAIRY ZAHARI holds a Bachelor's degree in Electronics Engineering (Computer Engineering), as well as MSc and PhD degrees in Telecommunication Engineering (specializing in RF & Microwave Engineering). Prior to their current role, he gained valuable industry experience as a Development Engineer at Intel Technology Sdn. Bhd. for 3 years. Currently, he serve as a Senior Lecturer at the Faculty of Plantation and Agrotechnology at Universiti Teknologi MARA, Melaka Branch, Jasin Campus. His research interests encompass RF and microwave engineering, renewable energy, the Internet of Things (IoT), precision agriculture and the applications of these technologies within smart farming.

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