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Sommario/riassunto

This book presents a unique and comprehensive introduction to performance prediction of directed energy (DE) systems using mathematical modeling frameworks, with focus on high power radio frequency and high energy laser performance. It provides system designers with a means for predicting DE system performance and measuring the required power levels necessary to neutralize targets including UAVs and other unmanned swarms. The book begins with a systematic and concise overview of DE systems, including its historical roots. You will then learn how to develop effective mathematical models and understand how to use these models to implement safer and efficient use of DE systems in various scenarios. A special section is devoted to examples and attributes of unmanned systems since these are viewed as primary targets suitably disabled by DE systems. There is also an extensive survey of the relevant tools of mathematics and physics for DE systems, together with a series of pertinent references you can follow for further information. The final section of the book outlines potential future research directions that interested researchers are encouraged to pursue. With its exclusive and unmatched coverage of predictive modeling for DE systems and performance, this is an important book for engineers and operators working in the defense industry, including government and private contractors, as well as research practitioners at universities and engineering organizations worldwide working in the field of DE system performance.