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	Nota di contenuto	Chapter 1. SimNIBS 2.1: A Comprehensive Pipeline for Individualized Electric Field Modelling for Transcranial Brain Stimulation -- Chapter 2. Electric Field Modeling for Transcranial Magnetic Stimulation and Electroconvulsive Therapy -- Chapter 3. Estimates of Peak Electric Fields Induced by Transcranial Magnetic Stimulation in Pregnant Women as Patients or Operators Using an FEM Full-Body Model -- Chapter 4. Finite element modelling framework for electroconvulsive therapy and transcranial stimulation -- Chapter 5. Design and Analysis of a Whole Body Non-Contact Electromagnetic Subthreshold Stimulation Device with Field Modulation Targeting Nonspecific Neuropathic Pain -- Chapter 6. Insights from Computer Modeling: Analysis of Physical Characteristics of Glioblastoma in Patients Treated with Tumor Treating Fields -- Chapter 7. Simulating the Effect of 200 kHz AC Electric Fields on Tumor Cell Structures to Uncover the Mechanism of a Cancer --

Chapter 8. Investigating the connection between Tumor Treating Fields distribution in the brain and Glioblastoma patient outcomes. A simulation-based study utilizing a novel model creation technique -- Chapter 9. Advanced Multiparametric Imaging for Response Assessment to TTFields in Patients with Glioblastoma -- Chapter 10: Estimation of TTFields Intensity and Anisotropy with Singular Value Decomposition. A New and Comprehensive Method for Dosimetry of TTFields -- Chapter 11. The Bioelectric Circuitry of the Cell -- Chapter 12. Dose Coefficients for Use in Rapid Dose Estimation in Industrial Radiography Accidents -- Chapter 13. Brain Haemorrhage Detection Through SVM Classification of Electrical Impedance Tomography Measurements -- Chapter 14. Patient-specific RF safety assessment in MRI: progress in creating surface-based human head and shoulder models -- Chapter 15. Calculation of MRI RF-Induced Voltages for Implanted Medical Devices Using Computational Human Models -- Chapter 16. Effect of non-parallel applicator insertion on 2.45 GHz microwave ablation zone size and shape -- Chapter 17. A Robust Algorithm for Voxel-to-Polygon Mesh Phantom Conversion -- Chapter 18. FEM Human Body Model with Embedded Respiratory Cycles for Antenna and E&M Simulations -- Chapter 19. Radio Frequency Propagation Close to the Human Ear and Accurate Ear Canal Models -- Chapter 20. Water-content Electrical Property Tomography (wEPT) for mapping brain tissues' conductivity in the 200-1000 kHz range: Results of an animal study.

Sommario/riassunto	This open access book describes modern applications of computational human modeling with specific emphasis in the areas of neurology and neuroelectromagnetics, depression and cancer treatments, radio-frequency studies and wireless communications. Special consideration is also given to the use of human modeling to the computational assessment of relevant regulatory and safety requirements. Readers working on applications that may expose human subjects to electromagnetic radiation will benefit from this book's coverage of the latest developments in computational modelling and human phantom development to assess a given technology's safety and efficacy in a timely manner. Describes construction and application of computational human models including anatomically detailed and subject specific models; Explains new practices in computational human modeling for neuroelectromagnetics, electromagnetic safety, and exposure evaluations; Includes a survey of modern applications for which computational human models are critical; Describes cellular-level interactions between the human body and electromagnetic fields.