

1. Record Nr.	UNINA9910427692603321
Titolo	Recent Advances in Engineering Mathematics and Physics : Proceedings of the International Conference RAEMP 2019 // edited by Mohamed Hesham Farouk, Maha Amin Hassanein
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
ISBN	3-030-39847-1
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (XIX, 401 p. 252 illus., 148 illus. in color.)
Disciplina	620.00151
Soggetti	Physics Engineering mathematics Computer mathematics Computational intelligence Mathematical physics Numerical and Computational Physics, Simulation Engineering Mathematics Computational Science and Engineering Computational Intelligence Mathematical Applications in the Physical Sciences
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	PartI: Engineering Mathematics -- Chapter1: State Dependent Parameter PID+ Control Applied to a Nonlinear Manipulator Arm -- Chapter2: Sliding mode control with PID surface for robot manipulator Optimized by evolutionary algorithms -- Chapter3: Error analysis of nonlinear WENO schemes using modified equation -- Chapter4: Enhanced Modified-Polygon Method for Point-in-Polygon Problem -- PartII: Applications in Mechanical Engineering -- Chapter5: Transient temperature profiles in powder beds during additive manufacturing by 3D printing of metal powders: A Lattice Boltzmann Study -- Chapter6: Numerical and Experimental Validation of an Unbalanced Oil Vane Pump using RANS Approach -- Chapter7: Numerical Study of an Unbalanced Oil Vane Pump using Shear Stress Transport (SST) k

Turbulence Model -- PartIII: Solid-State Electronics -- Chapter8: Transport Properties of Ferromagnetic Silicene Superlattice based Nanostructure -- Chapter9: 3D Analytical Modeling of Potential, Drain Current, and Threshold Characteristics for Long-Channel Square Gate-All-Around (SGAA) MOSFETs -- Chapter10: Optimal parameter estimation of solid oxide fuel cells model using coyote optimization algorithm -- Chapter11: Simulation Study of Terahertz Radiation Coupling Inside Field Effect Transistors -- Chapter12: Second Order Rectification of high frequency Radiation In Bipolar Junction Transistor -- Chapter13: Structural and optical properties of zinc oxide micro-droplet thin films under doping effects -- PartIV: Electromagnetic Waves -- Chapter14: Design Optimization for High-Gain Quad-Array of Helical Antennas for Satellites Applications -- Chapter15: C-Band SIW Slot Synthetic Aperture Radar Antenna for Remote Sensing Applications -- Chapter16: Ultra-wideband compact T-junction with optimized V cut for millimeter wave applications -- Chapter17: Excitation of the first High order mode in Ridge Gap Waveguide -- Chapter18: Double Via Rows Radial Four-Way Power Combiner with Improved Isolation Performance -- Chapter19: Using Geometric Algebra for Formulating Electromagnetic Propagation Ray Tracing Preprocessing -- PartV: Information Technology -- Chapter20: Robust GPS Anti-Jamming Technique Based on Fast Orthogonal Search -- Chapter21: New algorithm based on S transform to increase defects resolution within ultrasonic images -- Chapter22: Reinforcement Learning for an Adaptive Personalized Platform for an Effective and Advanced Learning (APPEAL) -- Chapter23: A Context-Aware Motion Mode Recognition System Using Embedded Inertial Sensors in Portable Smart Devices -- Chapter24: Color Restoration Survey and an Overdetermined System for Color Retrieval from Faded Images -- PartVI: Engineering Mechanics -- Chapter25: EL NIÑO (2014-2016) and La Nino (2010-2012) : Their Impacts on Water Cycle Components -- Chapter26: Frequency scaling in a sweeping-jet fluidic oscillator working at low Reynolds numbers: A Multiple-Relaxation Time LBM model -- Chapter27: Water Aluminum Oxide Nano-Fluid Nusselt Number Enhancement and Neural-Network Accelerated Prediction -- Chapter28: Variants of the Finite Element Method for the Parabolic Heat Equation: Comparative Numerical Study -- Chapter29: An Intelligent IoT-Based Wearable Health Monitoring System.

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### Sommario/riassunto

This book gathers the proceedings of the 4th conference on Recent Advances in Engineering Math. & Physics (RAEMP 2019), which took place in Cairo, Egypt in December 2019. This international and interdisciplinary conference highlights essential research and developments in the field of Engineering Mathematics and Physics and related technologies and applications. The proceedings is organized to follow the main tracks of the conference: Advanced computational techniques in engineering and sciences; computational intelligence; photonics; physical measurements and big data analytics; physics and nano-technologies; and optimization and mathematical analysis.

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