LORENTZ TYPE RECIPROCITY RELATIONS IN ELECTROMAGNETIC FIELDS, IN PERIODICAL NON-HARMONIC STEADY-STATE

BY
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Abstract. Some Lorentz type reciprocity relations are established in electromagnetic fields evolving, in periodical non-harmonic steady-state, in a linear motionless, isotropic, non-homogeneous medium. The utilized proceeding is based on the association between Maxwell's equations in such a field with the vectorial identities (2) and (3). This proceeding ressorts to utilization of a symbolic method which permits to represent periodical non-harmonic (scalar or vectorial) signals by hypercomplex ones.

Keywords: Reciprocity Relations; Electromagnetic Field; Periodical Non-Harmonic Steady-State, Hypercomplex Symbolic Method.

CYLINDRICAL STRUCTURE IN TRANSVERSE ELECTIC FIELD FOR SCREENING AND FOR ORE BED EXPLORATION ANTENNAS

BY
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Abstract. The behaviour of a cylindrical structure in transverse electric field is examined. The obtained results are intended to be used in the ore bed exploration antennas and in electrical screens. To this end in view the Maxwell's equations of the electromagnetic field will be solved.

Keywords: Cylindrical Structure; Transverse Electric Field; Screening; Ore Bed.

SEMANTIC ERGODIC SOURCES WITH MEMORY

BY
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Abstract. Assuming certain costs for messages and states, the quantitative–qualitative entropies are determined for a source with memory. The relationships between these quantities are also established.

Keywords: Markov Sources; Matrix; Probability; Quantitative–Qualitative Information; Entropy.