DEVELOPMENT OF EFFICIENT ANTENNA OPTIMIZATION & DESIGN AUTOMATION TOOLS

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At high frequencies, consideration of the effects of mutual coupling, surface-waves and conductor/dielectric losses becomes of paramount importance in synthesis and design of multifunction and high gain printed elements and arrays, as well as in design of other high performance antenna structures subject to various design constraints. Over the last five years we have developed efficient electromagnetic optimization and synthesis tools based on evolutionary computational techniques for design and synthesis of complex antenna structures. In particular we have developed problem-specific algorithms based on Evolutionary Programming and integrated them with the MOM based electromagnetic models for shape optimization of novel antenna configuration capable of various multifunction operations.