

Rectenna Modeling Based on MoM-GEC Method for RF Energy Harvesting

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Abstract : Energy harvesting has arisen as a prominent research area for low power delivery to RF devices. Rectennas have become a key element in this technology. In this paper, electromagnetic modeling of a rectenna system is presented. In our approach, a hybrid technique was demonstrated to associate both the method of auxiliary sources (MAS) and MoM-GEC (the method of moments combined with the generalized equivalent circuit technique). Auxiliary sources were used in order to substitute specific electronic devices. Therefore, a simple and controllable model is obtained. Also, it can easily be interconnected to form different topologies of rectenna arrays for more energy harvesting. At last, simulation results show the feasibility and simplicity of the proposed rectenna model with high precision and computation efficiency.

Keywords : computational electromagnetics, MoM-GEC method, rectennas, RF energy harvesting

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