# Source-model technique analysis of electromagnetic scattering by surface grooves and slits

**Konstantin Trotskovsky and Yehuda Leviatan***

*Department of Electrical Engineering, Technion–Israel Institute of Technology, Haifa 32000, Israel*
**Corresponding author: leviatan@ee.technion.ac.il*

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A computational tool, based on the source-model technique (SMT), for analysis of electromagnetic wave scattering by surface grooves and slits is presented. The idea is to use a superposition of the solution of the unperturbed problem and local corrections in the groove/slit region (the grooves and slits are treated as perturbations). In this manner, the solution is obtained in a much faster way than solving the original problem. The proposed solution is applied to problems of grooves and slits in otherwise planar or periodic surfaces. Grooves and slits of various shapes, both smooth ones as well as ones with edges, empty or filled with dielectric material, are considered. The obtained results are verified against previously published data. 

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