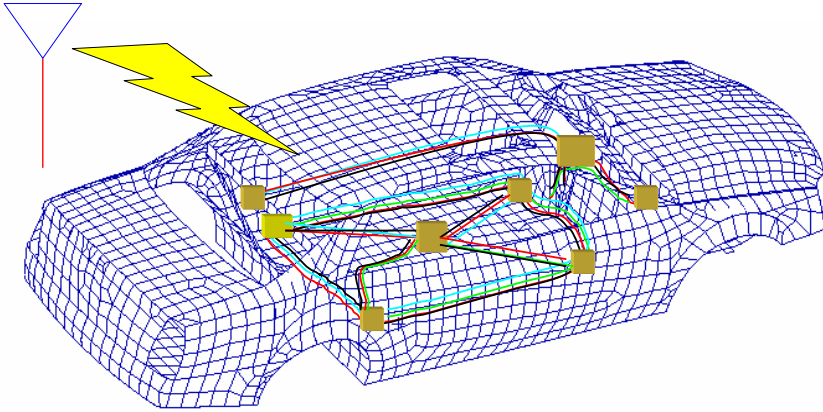


Goal: Field Coupling to Cable Bundles in Presence of Complex Platforms

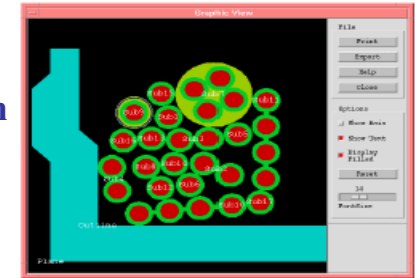


Software Tools

EMCAR : 3D Surface MoM MLFMM code developed by Dr. Kubilay Sertel of ElectroScience Lab.

CableMod : 2D field solver using Boundary Element method to calculate SPICE equivalent model of cable bundles.

Cross Section of a Harness in CableMod



Telegrapher's Iterative Coupling Equations (TICE)

$$\frac{d[V^s]}{dx} + j\omega[L'] [I] = [E_x^{exc}] + j\omega[A_{ns}]$$

Non-static contributions

$$\frac{d[I]}{dx} + j\omega[C'] [V^s] = j\omega[C'] [V_{ns}^s]$$

Quasi-static contributions

Iterative approach to solve non - static contributions

$$[A_{ns}]_n = [A]_{n-1} - [L'] [I]_{n-1}$$

$$[C'] [V_{ns}^s]_n = \frac{d[I]}{dx} \frac{1}{j\omega} + [C'] [V_{ns}^s]_{n-1}$$

Validation

