Comment on “EM De-embedding Magic – Part I: What’s the Problem, Anyway?” by James C. Rautio

The paper written by Dr. Rautio is very interesting and easily readable. With that said, it would be worthwhile to know under what conditions the port discontinuity can be modeled as a pure shunt capacitance. Also, what are the validity limits of this method? To put it simply, where does it break down, and what are the outstanding issues still being research by Sonnet and other companies that are marketing similar software for simulation microwave circuits? For instance, what happens if the project under consideration is characterized by the following situations?

1. presence of radiation losses
2. presence of surface wave losses
3. high metallic/dielectric losses

Also, would it be possible for the author to summarize what the major differences are between de-embeddings in shielded and unshielded environments?

In which of the three situations mentioned above are we going to encounter de-embedding issues if we shift the reference planes away from the port locations?