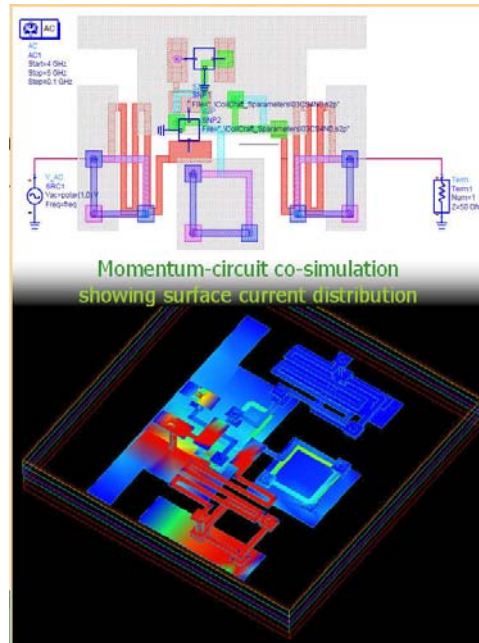


Lecture V

Comments to HW5

1. The frequency-domain transfer function obtained with frequency-domain solvers - Ansoft and ADS - **automatically** takes the corresponding propagating time delay between ports into account. The time delay information is stored in the phase information for different harmonics.
2. Therefore, the IDFT time window in MATLAB **must** be wide enough to catch the real ramp response. We did not do it in the original text of lecture #5. As a result, the corresponding comparison was **not** correct.
3. FDTD generator voltage **must be 2V, not 1 V**. In that way, the trace voltage is 1V, by voltage division. This result should agree with any frequency-domain solver: HFSS or ADS.
4. The Ansoft project uses frequency step of 0.1GHz and 50 real frequency points, over 0.1-200GHz. This result may be simply **inaccurate** when the real S41 behavior is taken into account - show ADS simulations.
5. The Ansoft results **will not be improved** when the step size decreases from 0.1GHz to 0.02 GHz - show the result. The only way is to **increase the number of real frequency points**. Discuss the execution time!
6. ADS: uses the MoM solver (Momentum) and the FEM Solver (like Ansoft HFSS).
7. Tom - **next week's ADS simulation** - in class.



Momentum G2 is the improved 2nd generation of the powerful Momentum 3D planar electromagnetic simulator from Agilent EESof EDA, the technology and innovation leader in high-frequency mixed-signal electronic design automation (EDA). Momentum G2 is seamlessly integrated into the Advanced Design System (ADS), the only design simulation platform that enables the co-design of IC, package and board in high-frequency and hi-speed applications. It seamlessly integrates system, circuit, full 3D electromagnetic simulation with Agilent's test instrumentation for you to do single pass successful electronic designs repeatedly.

Momentum G2 is an advanced Method of Moment (MOM) 3D planar electromagnetic simulator, enhanced with the latest NlogN and multi-threading solver algorithms, to deliver the fastest and highest capacity 3D planar EM simulation possible. Integrated within ADS, it allows electromagnetic simulation to be used together with circuit and system co-simulation or co-optimization to account for proximity or radiation effects of planar structures such as traces or printed antennas. Visualization of the results in terms of surface currents or radiated fields provides insights on where to fix problem areas.

Momentum G2 is paired with a ingenious parameterized passive model generation capability called Advanced Model Composer (AMC). AMC enables you to create EM based custom libraries of planar 3D models such as transitions, discontinuities or passive components not available in the standard simulation libraries because of novel geometries or dimensions beyond the range of validity. AMC libraries retain the accuracy of EM simulation but simulate and optimize at the speed of circuit simulation through smart interpolation across the parameterized EM database.

Momentum Turbo further accelerates the simulation of Momentum G2 by over 6x through parallel computing on up to 8 nodes of a compute cluster. This is especially useful for large simulations of complex boards or packages for signal integrity applications.