

Paris Session 2022



Importance of EMT-Type Simulations for Protection Studies in Power Systems with Inverter-Based Resources

SC B5 – PS1 – 1.03
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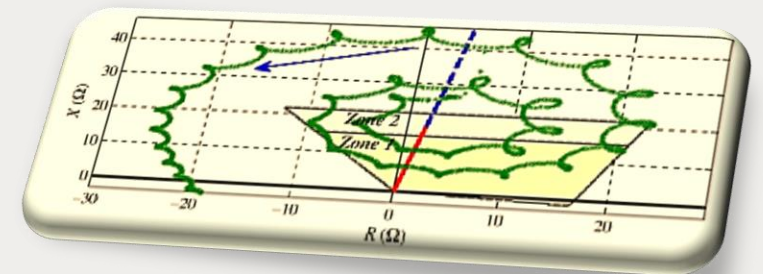
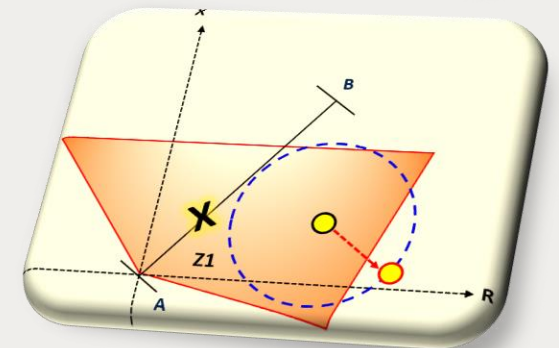
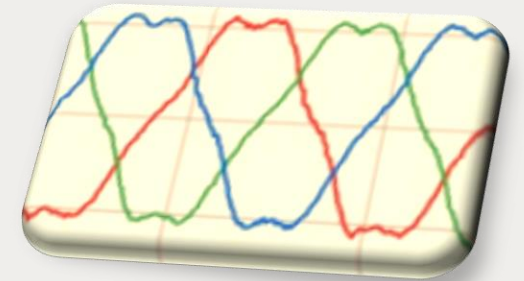


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Inverter-Based Resources (IBR) Transient Events can Affect Protection Schemes

Some examples:

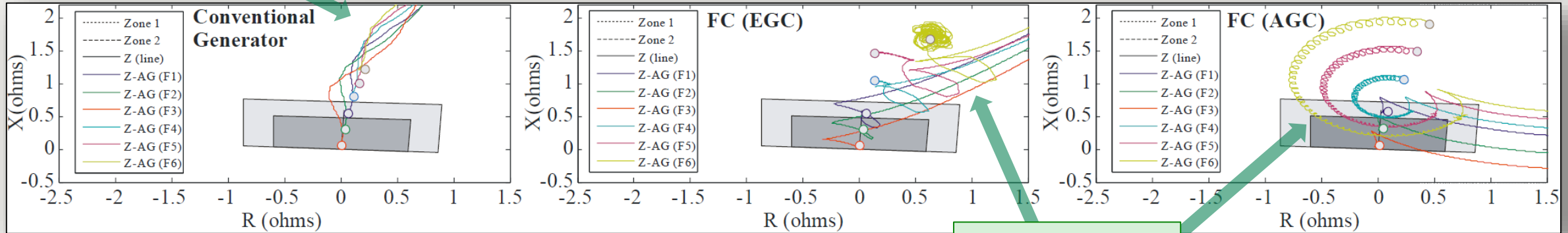
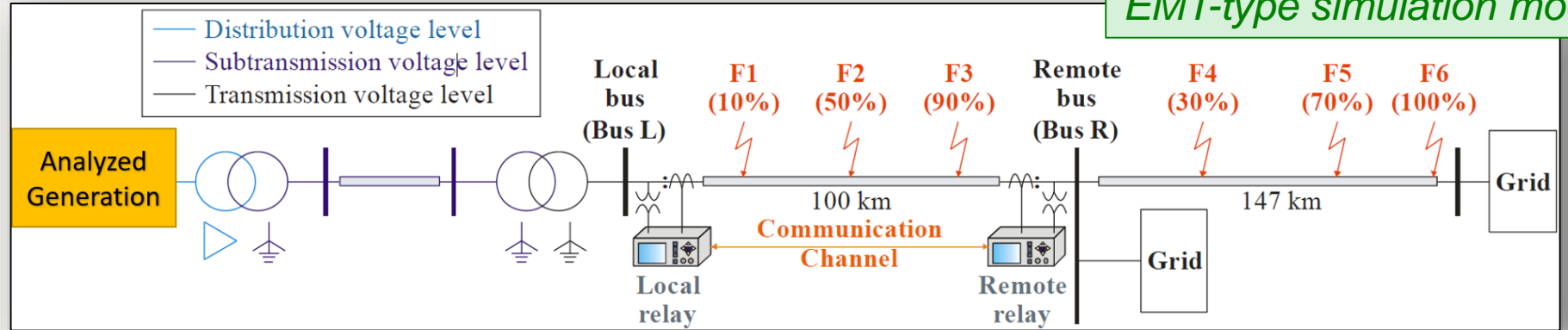
- Inverter power switching result in spurious frequencies
 - It can affect phasor estimations, introducing oscillations
- Phase-locked loop (PLL) estimates grid frequency
 - Errors result in frequency deviations in output quantities
- Crowbar protects converters in DFIG units
 - Depending on the slip, relevant frequency deviations in output quantities



Group Discussion Meeting

Results

Well-behaved trajectories



Critical trajectories

EMT-type simulations are of utmost importance for protection studies in power systems with IBRs!

