**Seminar3**

In **MATLAB Simulink,** carry out the following simulations:

1. Build up ***Series connection of 2 single-phase VSIs*** with **single-phase half-bridge inverter** **OR** **single-phase full-bridge inverter** in simulation.



Fig.1 Series connection of 2 single-phase VSIs with single-phase full-bridge inverter

* Observe the single inverter’s time sequence waveform and input/output voltage relationships
* Study the basic operating principle of ***Series Connection of Multiple Single-phase VSIs***
* Plot the curves characterizing the relationships between **phase-shifting angle** and:
  + RMS value of the fundamental component in output voltage
  + output voltage THD
  + 3rd 5th 6th 7th and 9th harmonics components

1. For three-phase bridge inverter:

* Analyze the voltage across power switch and the current flowing through it
* Calculate the 5th 7th 11th and 13th harmonics components in output voltage and output current. Then compare with simulation results.

表 1

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| --- | --- | --- |
| **3** | Use single-phase **full-bridge** inverter; Fix the internal phase-shifting angle θ=150° inside the inverters; Vdc=400V; Rload=8Ω; Change the external phase-shifting angle φ between inverters. | Vdc=200V; f=50Hz; R=10Ω,L=10mH |











