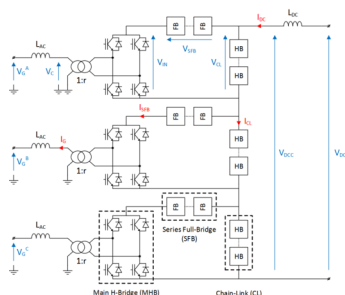




Control of Series Bridge Converter

CONTEXT

Series Bridge Converter (SBC) has been proposed as innovative concept by General Electric. Compared to a conventional MMC converter used for HVDC applications it can offer smaller converter footprint and component count. To achieve acceptance in the market place a viable control scheme have to be developed.



APPLICATION DOMAIN

- HVDC multi level converter
- Series Bridge Converter
- Control of Series Converter Topologies

ADVANTAGES

Viable control low for steady state operation of SBC have been developed.

TECHNOLOGY DESCRIPTION

The work was focused on the development of a working control law for SBC. It was considered that a sufficient voltage can be provided in the transverse (series full-bridge) branch, such that the main H-bridge can always operate in zero voltage switching. The role of the station transformer and its coupling was studied extensively, as well as the properties its inductance matrix should have to operate properly, with technical solutions proposed. Developed control laws have been used to demonstrate steady state operation of SBC under different set points using average simulation model.

The proposed control scheme can easily be applied to other series topologies, which share the same structural properties and are associated to the same difficulties.

TRL SCALE



DELIVERABLES

- Average MATLAB model
- PhD thesis chapter

SCIENTIFIC REFERENCE

none

