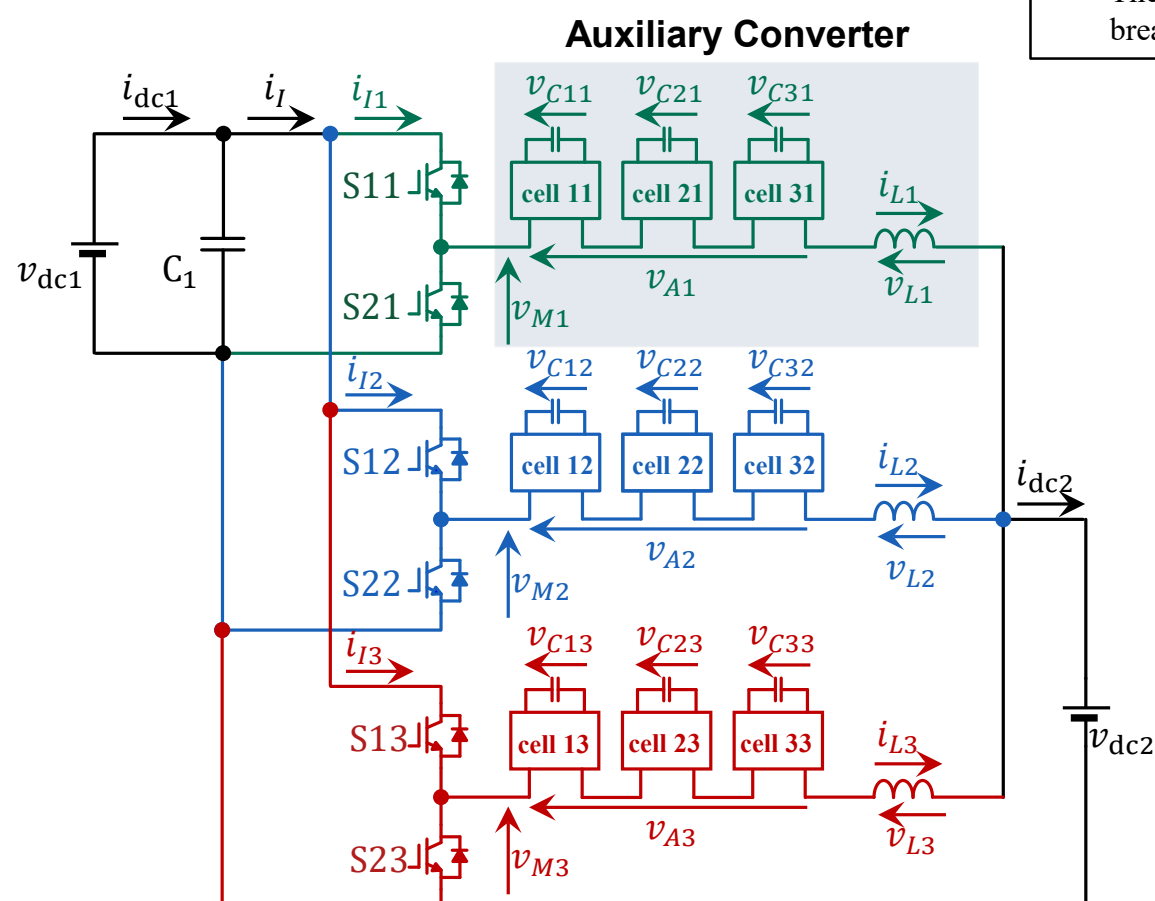


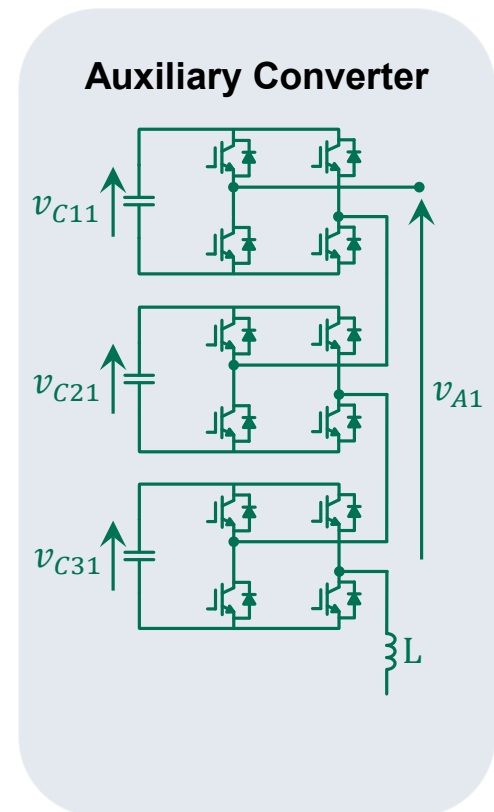
Interleaved Bidirectional Chopper With Auxiliary Converters for Battery Energy Storage Systems

Hagiwara Lab

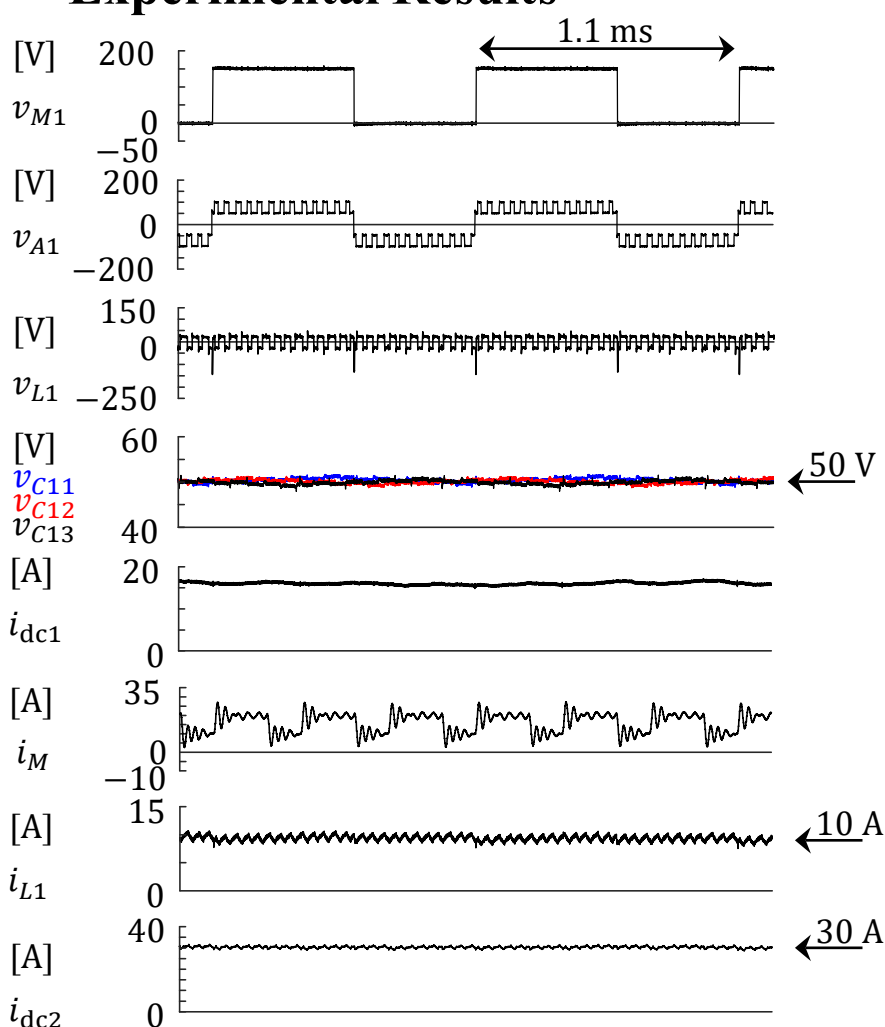
► Circuit Configuration



- Smaller inductors can be used for current smoothing.
- The aux. converters can be used as solid-state dc-circuit breakers.



► Experimental Results



► Comparison

System parameters

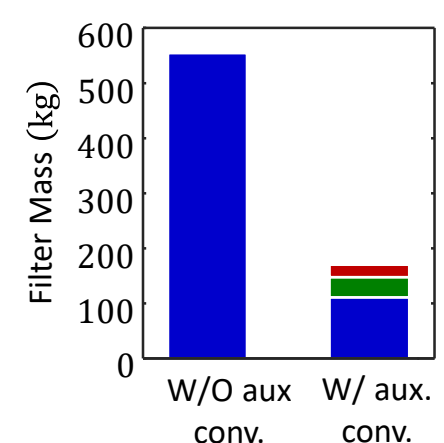
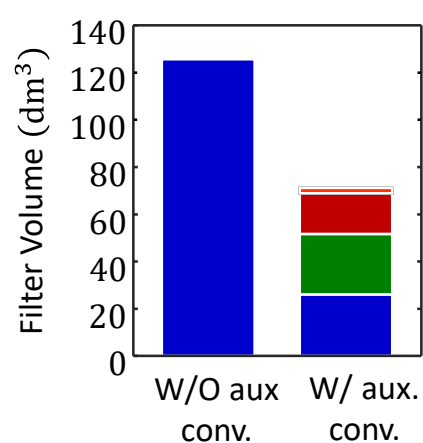
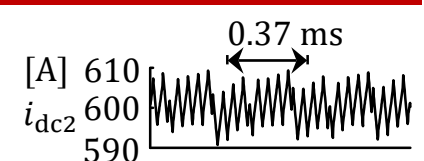
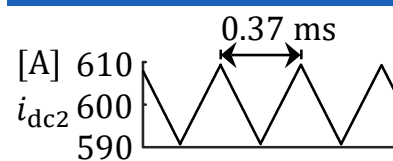
$$P = 450 \text{ kW.} \quad v_{dc2} = 0.75 \text{ kV.}$$

$$v_{dc1} = 1.5 \text{ kV.} \quad i_{dc2} = 0.6 \text{ kA.}$$

Under the same peak-to-peak current ripple condition

Without Auxiliary Conv.
 $L = 7.3 \text{ mH}$

With Auxiliary Conv.
 $L = 0.5 \text{ mH}$



■ Inductors ■ Capacitors ■ Cooling ■ IGBTs