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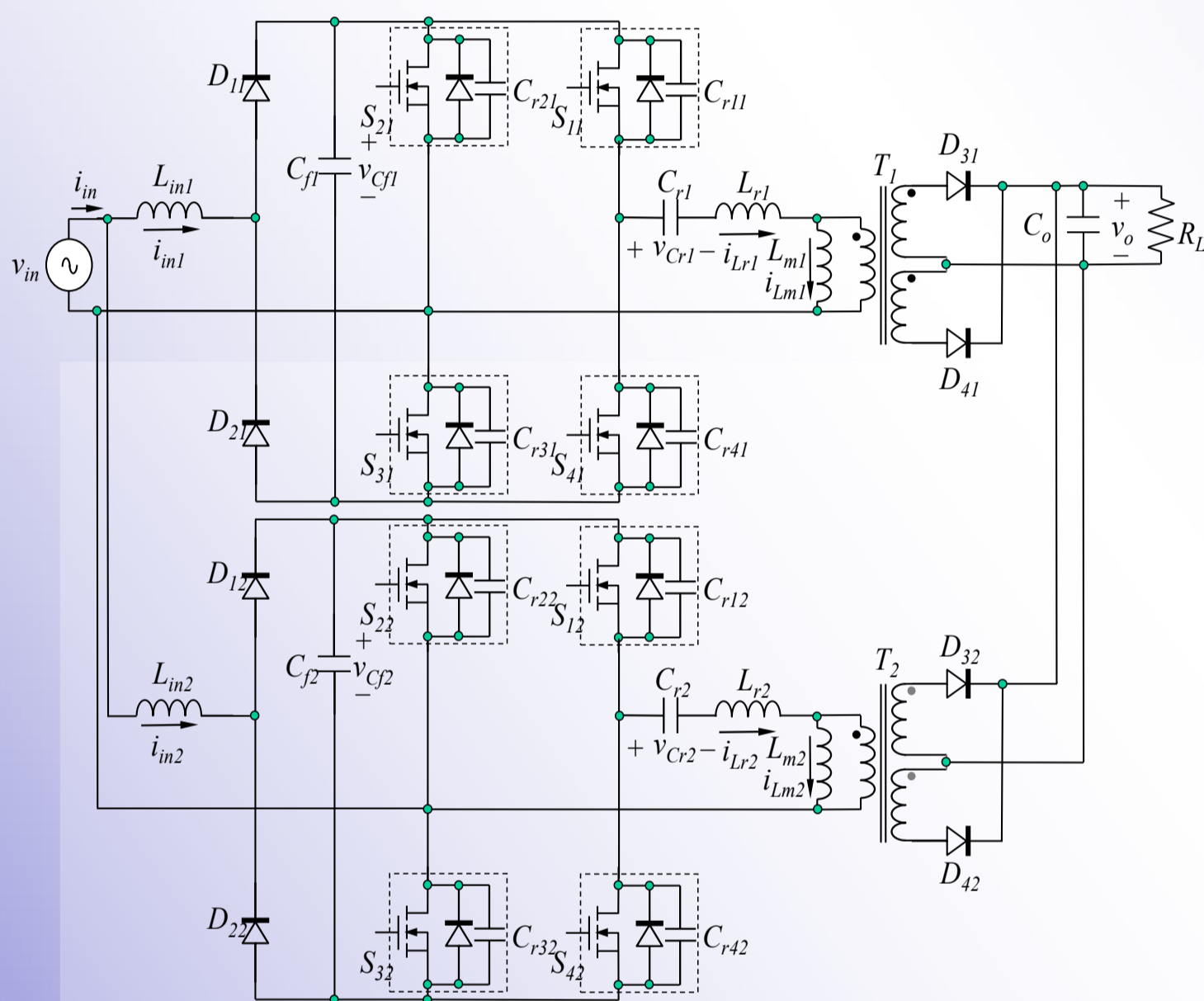
An Interleaved High-Performance AC/DC Converter

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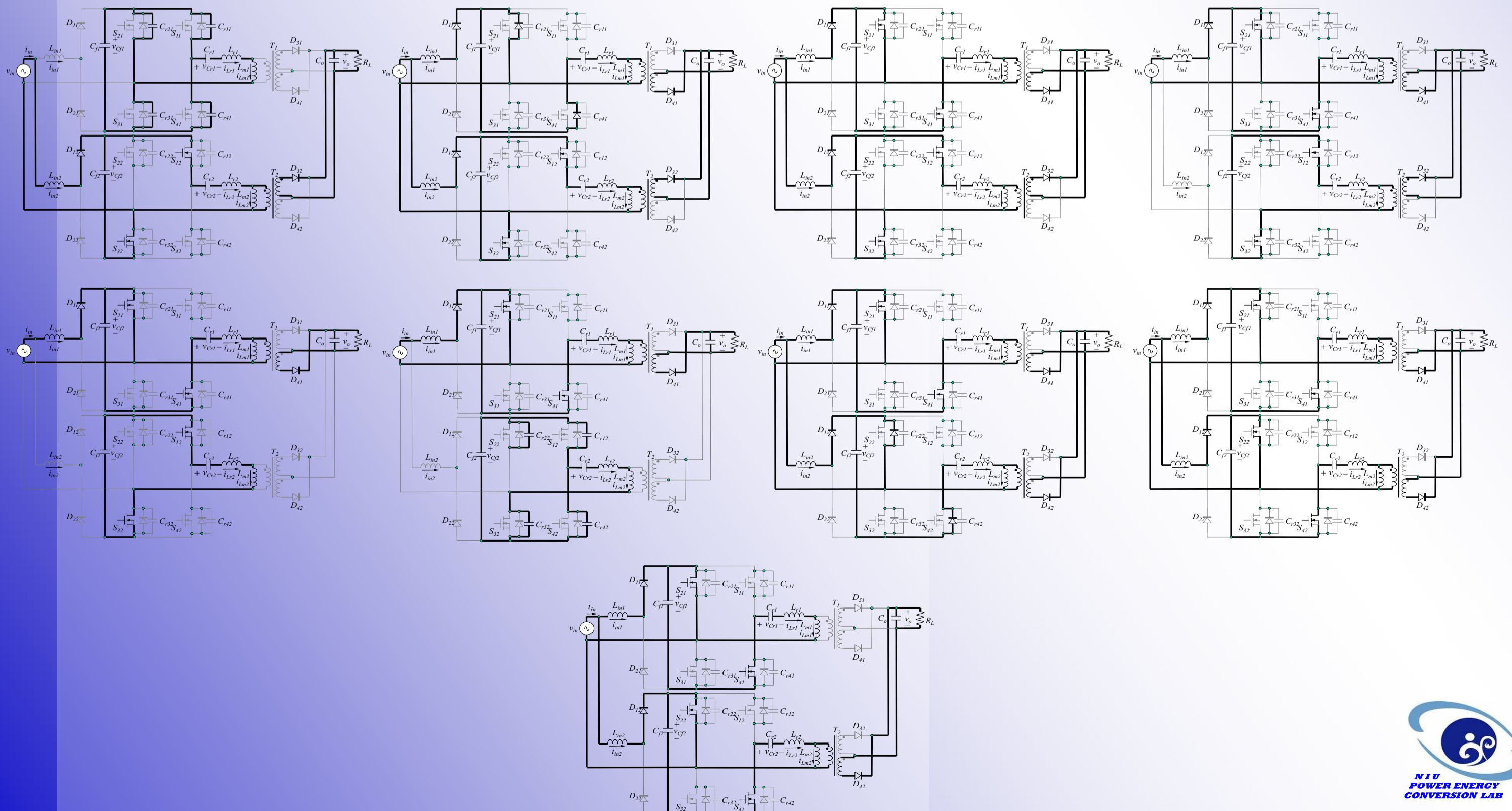
ABSTRACT

An interleaved high-performance AC/DC converter is presented in this paper. It includes two elementary single-stage high performance ZVS AC/DC converters which only include four power switches to correct power factor in their input side and regulate their dc output voltage. Moreover, they are parallel connection and are operated at interleaved mode to share the output power. The proposed converter does not only decrease the current stress of power semiconductor devices but reduces the input ripple current the output ripple current. Furthermore, they adopt LLC resonant technique to get ZVS on power switches in them. A simple frequency modulation control strategy is used in proposed converter to synthesize a low harmonics sinusoidal input current waveform and achieve well dynamic regulation. A 1000W presented converter is design to observe its performance.

STRUCTURE AND OPERATION PRINCIPLES



The proposed interleaved high-performance AC/DC converter.



DESIGN CONSIDERATIONS AND EXPERIMENTAL RESULTS

| | |
|---------------------|---|
| Input voltage | $v_{in}(t) = V_{in,max} \sin \omega_{in} t = 155 \sin(2\pi \times 60)t$; |
| Output voltage | $V_o = 48V$; |
| Output power | $P_{o,max} = 1000W$; |
| Switching frequency | $f_s = 100kHz$; |

