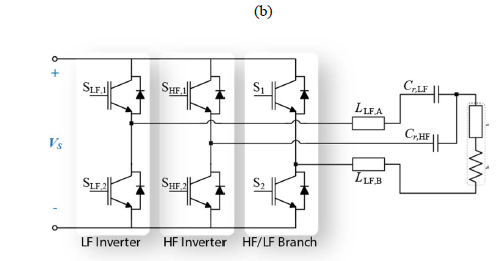
**Multi-Resonant Power Converter for Improved Dual-Frequency Induction Heating**

**Abstract:**

Industrial induction heating is a key manufacturing process due to its benefits in terms of efficiency, accurate output power control, and high performance. These have made possible the extension of this technology to a wide range of industries from automotive to aeronautic, domestic or renewable energies. One of the main challenges still present is the design of a high performance and cost-effective process for those induction targets with complex geometries exposed to the magnetic field, being the most representative example gears present in most mechanical systems. to propose a family of power converters able to supply the inductor system with two simultaneous frequencies in order to improve the heating process of the induction target. The proposed converter takes advantage of a multi-resonant network allowing full control of the output power delivered at each frequency and, at the same time, a compact and cost-effective implementation.

**Block Diagram**

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