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(71) Applicant: TAE TECHNOLOGIES, INC. [US/US];
19631 Pauling, Foothill Ranch, California 92610 (US).

(72) Inventor: SLEPCHENKOV, Mikhail; 19631 Pauling,
Foothill Ranch, California 92610 (US).

(74) Agent: ROBERTS, Kenneth S.; One LLP, 4000
Macarthur Blvd., East Tower, Suite 500, Newport Beach,
California 92660 (US).

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(54) Title: MULTI-LEVEL MULTI-QUADRANT HYSTERESIS CURRENT CONTROLLERS AND METHODS FOR CONTROL THEREOF

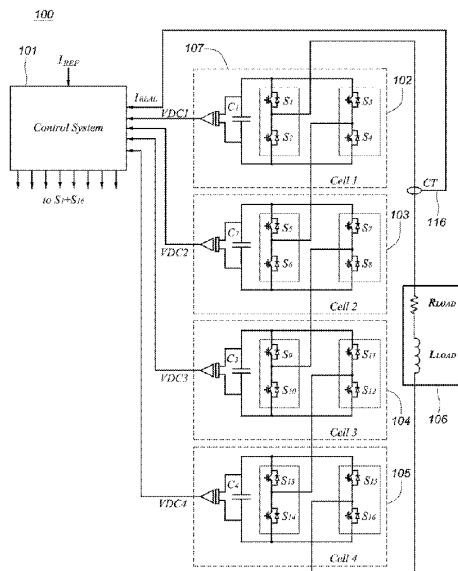


FIG. 1A

(57) Abstract: Systems and methods for multilevel hysteresis current control for a cascaded multilevel converter having a plurality of power cells connected in series with a positive integer number of output voltage levels, and to control any shape of AC/DC current in the load, transfer electrical power from energy storage elements of the power cells to that load and recover the energy back to the storage elements. Systems and methods for voltage balancing on energy storage elements of the power cells to determine whether to inject energy into or extract energy from a selected storage element, and for zero switching state rotation technique of switching elements in each power cell of cascaded multilevel converter.

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