

High temperature superconductor based 500 kW smart grid charging for mobile applications

Regular Track 6: Charging Systems and Infrastructures

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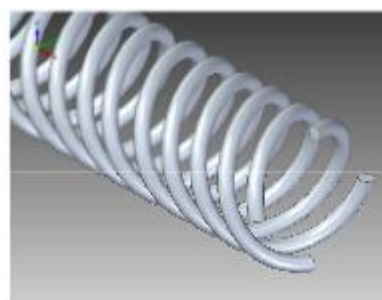
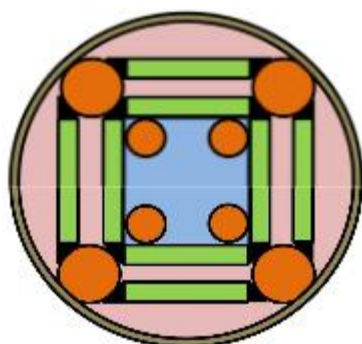
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Abstract — The electric mobility is abundantly clear on the rise, but the customer demand of short charging times, which are comparable to the refueling of a petrol engine based car, is still not fulfilled. Current solutions for this challenge are liquid cooled cables with conventional conductor materials. In proven practice they are currently limited to 135 kW, which is still not enough to reach the focused charging time. This paper analyses the necessity of high power charging and one technically and economically realistic solution based on superconductors as conductor material and a modular rectifier including the build-up of a prototype cable.

Keywords — *superconductor, high power charging, charging time reduction, cable topologies, charging system, ISCAD*



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