

Tipo di tesi: Laurea triennale

Corso di Laurea: Ingegneria

Tipologia: compilativa

Titolo della tesi: Survey on supercapacitor technologies for Energy Storage Systems for future fusion power plants

Proponente / correlatore: Ferdinando Gasparini

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Argomento della tesi: (5-10 righe):

Fusion experiments always dealt with strong and fast variation of needed electrical power and typically such power peaks cannot be drawn directly from the electrical power grid. So, some of the existing magnetic fusion machines adopt electrical energy storage systems (EESS), in order to create and/or sustain the plasma. However, future fusion plants will need power levels which will be much higher than existing facilities, thus new technologies for the EESS should be investigated. The EESS should be able to feed high bursts of electrical power when needed to help creating and sustaining the plasma. The energy storage systems can be both concentrated or distributed along the various power loads, such to balance their power demand and to flatten the power request seen from the grid. As such, a possible suitable technology may be super-capacitors, since they can sustain many high-power shots without degrading over time and be distributed and integrated among different subsystems. This thesis will focus on the analysis of the available super-capacitor technologies for EESS more suitable for fusion power plants, considering the state-of-the-art and possible advancements in the future.

Competenze richieste (se necessarie): è sufficiente la preparazione curricolare

Data della proposta:

Stato: non assegnata

Laureando/a: (quando sarà assegnata)