



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

DEPARTMENT
OF CHEMISTRY
"GIACOMO CIAMICIAN"

Bologna 18/06/2026

OBJECT: Evaluation of PhD Thesis "Sustainable electrochemical energy storage systems working in aqueous medium with high-voltage and long-term cyclability" by Amelia Aleksandra Klimek, Poznan University of Technology, Universite de Haute-Alsace.

This is an outstanding work that addresses very challenging fundamental and applied studies on supercapacitors.

The experimental results are original and of high significance and might pave the way towards the design of novel electrode and electrolyte components of aqueous electrical double layer capacitors. Specifically, this work sheds light on the interplay among electrolyte formulation and electrode nature and architecture.

The candidate demonstrates a deep knowledge about the processes that drive supercapacitor operation, on the key components of the supercapacitor cells, such as high surface area carbons and aqueous, redox active and gel electrolytes, on the advanced analytical techniques and on the techniques adopted to get insight into the chemical-physical properties of these materials and devices.

The work is excellently described and the dissertation very well organized. The document is of high standard with respect to technical detail and the language is appropriate. The introduction chapters are exhaustive and review the recent research works on the Thesis topics, which clearly proves high familiarity of the candidate with the field of research in question. Furthermore, the candidate has adequately mentioned and interpreted the relevant literature on her dissertation topic.

Research approaches and results are original and innovative and rely on different activities. They span from the modification of neutral aqueous electrolytes to enhance

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I am favourable for the Ph.D. defence of Ms. Amelia Klimek in the view of obtaining the PhD degree from the University of Poznan, Poland and University of Haute-Alsace, Mulhouse, France.

I would also like to recommend awarding the dissertation and conferring the Ph.D. degree to Amelia Klimek with distinction (honors).

Sincerely,

Francesca Soavi

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