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Conceptualization, G.V. and F.C.; methodology, G.V.; software, F.C.; validation, G.D., F.C. and G.V.; investigation, G.V.; data curation, F.C.; writing–original draft preparation, G.V.; writing–review and editing, D.G and G.V.; supervision, G.V.
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Highlights of the paper

Purpose of the paper: To design a power converter with high step-down ratio (about 100:1) to supply a PEM electrolyzer.
Methodology: The paper proposed a LLC converter where resonance is exploited to minimize switching losses and diodes reverse recovery losses.
Findings: The research shows that losses can be reduced in a wide interval of frequency by the LLC converter assuring an overdamped dynamic behavior.
Research limits: The electrolyzer is modelled neglecting its dynamic behaviour; it does not affect the design of the power circuit but can influence the control design. The efficiency is worsened by conduction losses on the rectifier diodes.
Practical implications: The use of more efficient converters can encourage the use of hydrogen also for low power.
Originality of the paper: It is the first time that a LLC power converter is proposed and discussed for a PEM electrolyzer.