

Preliminary Estimation of Experimental Test of Short Stack Ammonia Solid Oxide Fuel Cell

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Abstract (4-6 lines, 500-700 letters incl. spaces)

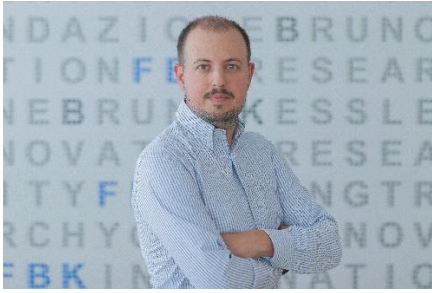
Ammonia represents a considerable part of the hydrogen market, where about a half of the total pure hydrogen produced is employed for ammonia synthesis. Along with its employment as a chemical intermediate for fertilizer production, ammonia could be used directly as a fuel, for example, in solid oxide fuel cells replacing hydrogen. Within the "Horizon Europe" project AMON framework, we present a preliminary analysis of experimental data conducted on a six-cell SOFC stack directly fed with ammonia and hydrogen–ammonia blends. Several tests were conducted, aiming to map the performances of the stack at different temperatures and fuels. The fuel variation intends to mimic different anodic recirculation and pre-cracking levels, increasing the mixture's proportion of nitrogen and hydrogen. The pre-cracked ammonia is evaluated to preserve the stack and balance of the plant. The stack tests have mapped the performances at partial duty and evaluated the dynamic response. Furthermore, a long-term test assessed the performance reduction over time. The results of the different experiments are in good agreement with previous tests conducted in FBK with similar equipment, showing a detrimental effect on the performances at high current if fed with pure ammonia and a stable response of the stack in the long run tests.

Personal Introduction

- Listed in program
also for poster presenter, however only mandatory for oral presenters
- Facilitation summary for session chair

Please deliver together with above short abstract asap to SSD@efcf.com:

1. Portrait (600dpi)



2. Short CV

Luca Praticò is a mechanical engineer and holds a PhD in energy engineering. He's currently working at HyRES unit at Fondazione Bruno Kessler, an independent research center in the north of Italy. He has a long experience of high temperature energy system development both on high temperature solar heat and hydrogen systems. He's currently involved in several European projects both in hydrogen production and employment.

3. "Going in position"

2-3 lines re: projects involved in; aims; targeted audience/client/market or e.g.

- I have interest in the SSD network to exchange expertise in my field of activity, complement team skills and discuss project ideas
- Attendance is triggered by an exchange with a colleague, who is also interested in new sustainable maritime fuel cell technology approaches