Micro Solid Oxide Fuel Cells, towards a new generation of miniaturized portable power generator

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The energy gap between the capacity of current battery technology and the power required by new small portable devices is increasing year by year. Solid oxide fuel cells (SOFC) are one of the most efficient known power generators that could replace current Li-ion technology. Recent advances in integration of SOFC in mainstream silicon technology enable their use on portable applications.

In this talk, we will present the micro and nanofabrication approaches followed to reduce the size, and thermal mass of μSOFC devices allowing quick and low energy consumption start-ups, crucial for portable applications. In addition, the vertical stacking design of the complete power generator will be shown. Specifically, the fabrication and characterization of the pre-processor unit (micro-reformer) will be presented.