



Experiment Proposal

	• •	Experiment number GP2022007	
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Co-investigator	Dr Giovanni Romanelli, University of Rome Tor Vergata, ITALY		
Co-investigator			
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Experiment title	Electrical performance of doped perovskite for SO	DFCs applications	
SRF Instrument	Parr 4000° Pot./Galv./EIS	Days requested: 8	
Access Route	Rapid Access	Previous GP Number: -	
Science Areas	Chemistry, Energy	DOI: -	
Sponsored Grant	None	Sponsor: -	
Grant Title	-	Grant Number: -	
Start Date	-	Finish Date: -	
Similar Submission?	-		
Industrial Links	-		
Non-Technical Abstract	Solid oxide fuel (SOFCs) cells hold great potential for energy conversion. Unlike other fuel cell technologies, SOFCs can convert chemical energy from hydrogen and hydrocarbon- based fuels (methane, natural gas, biogas, etc.) into electrical energy with high electrical efficiency. The high operating temperature of SOFCs remains the main limiting factor for long-term operation and commercial spread. Lowering the temperature to an intermediate and/or low range (750â [^] 400 ŰC) would significantly improve the durability, thermal compatibility, and cycle capacity and reduce the manufacturing costs. The choice of suitable electrodes for intermediate-temperature solid oxide fuel cells (IT-SOFCs) represents one of the major a challenge toward full commercialization. Thus, perovskite-type mixed conductors are extensively studied as potential electrodes for all-perovskite devices. In the present study, we plan to investigate the effect of controlled noble metal doping at the B-site of La0.6Sr0.4FeO3-Î'(LSFR) by means of Electrochemical Impedance Spectroscopy using the PARSTAT 4000A Potentiostat/Galvanostat (located at Unit-Univ Tor Vergata). The introduction of 1 mol % ruthenium or platinum has been already successfully achieved and La0.6Sr0.4FeO.99Ru0.0103-Î'(LSFR) and La0.6Sr0.4FeO.99Pt0.0103-Î'(LSFP) single-phase compounds were obtained. The detailed analysis of the electrical, and electrochemical properties of LSFR and LSFP will shed information on the effect of doping in improving the electrocatalytic properties of the parent perovskite structure.		

Publications

Instruments Access Route Science Areas Sponsored Grant Grant Title Start Date Similar Submission? Industrial Links Days Requested: Previous RB Number: DOI: Sponsor: Grant Number: Finish Date:







Sample record sheet

Principal contactProfessor Silvia Licoccia, University of Rome Tor Vergata, ITALYSRF InstrumentParr 4000° Pot./Galv./EISDays Requested: 8Special requirements:

SAMPLE

Material	La Sr Fe O Ru Pt mixed oxide	-	-
Formula	La Sr Fe O Ru	-	-
Forms	Solid		
Volume	10 cc		
Weight	200-500 mg		
Container or substrate	-	-	-
Storage Requirements	-	-	-

SAMPLE ENVIROMENT

Temperature Range	290 - 1000 K	-	-
Pressure Range	1013 - 1013 mbar	-	-
Magnetic field range	- T	-	-
Standard equipment	-	-	-
Special equipment	-	-	-

SAFETY

Prep lab needed	Yes	
Sample Prep Hazards	-	
Special equip. reqs	-	
Sensitivity to air	No	
Sensitivity to vapour	No	
Experiment Hazards	-	
Equipment Hazards	-	
Biological hazards	-	
Radioactive Hazards	-	
Additional Hazards	-	
Additional Details	-	
Sample will be	Returned to user by instrument	
	scientist (when inactive)	

