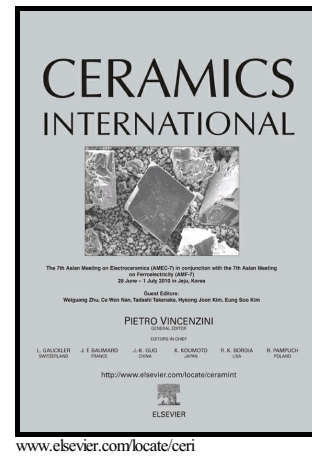


# Author's Accepted Manuscript

Structure and transport properties of the spark plasma sintered barium cerate based proton conductor

Sergii A. Sergiienko, Vladislav A. Kolotygin, Nataliya D. Shcherban, Svitlana M. Filonenko, Dmitry O. Moskovskikh, Andrey A. Nepapushev, Dmitry I. Arkhipov, Obid B. Tursunov



PII: S0272-8842(17)31689-9  
DOI: <http://dx.doi.org/10.1016/j.ceramint.2017.08.007>  
Reference: CER115961

To appear in: *Ceramics International*

Received date: 22 May 2017  
Revised date: 23 July 2017  
Accepted date: 1 August 2017

Cite this article as: Sergii A. Sergiienko, Vladislav A. Kolotygin, Nataliya D. Shcherban, Svitlana M. Filonenko, Dmitry O. Moskovskikh, Andrey A. Nepapushev, Dmitry I. Arkhipov and Obid B. Tursunov, Structure and transport properties of the spark plasma sintered barium cerate based proton conductor *Ceramics International*, <http://dx.doi.org/10.1016/j.ceramint.2017.08.007>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

**Structure and transport properties of the spark plasma sintered barium cerate based proton conductor**

**Sergii A. Sergiienko<sup>a</sup>, Vladislav A. Kolotygin<sup>b</sup>, Nataliya D. Shcherban<sup>c</sup>,  
Svitlana M. Filonenko<sup>c</sup>, Dmitry O. Moskovskikh<sup>a</sup>, Andrey A. Nepapushev<sup>a</sup>,  
Dmitry I. Arkhipov<sup>a</sup>, Obid B. Tursunov<sup>a</sup>**

<sup>a</sup>National University of Science and Technology MISiS, Leninskii pr. 4, Moscow 119049, Russia,

<sup>b</sup>Institute of Solid State Physics RAS, Institutskaya 2, Chernogolovka, 142432, Moscow region, Russia

<sup>c</sup>L.V. Pisarzhevsky Institute of Physical Chemistry of NAS of Ukraine, 31 Nauki Ave., Kyiv, 03028, Ukraine

sergienko\_sergeri@ukr.net

s.sergienko@misis.ru

**Abstract**

BaCe<sub>0.7</sub>Y<sub>0.2</sub>In<sub>0.1</sub>O<sub>3-δ</sub> (BCYI) compositions were prepared by a modified Pechini method, following this the ceramic samples were consolidated using conventional sintering (CS) and spark plasma sintering (SPS) at 1250 – 1500 °C for 3 – 10 minutes. The structural and microstructural characteristics of the samples were determined using XRD, SEM and TEM. The total, bulk and grain boundary ionic conductivities were evaluated using the AC impedance method in dry air, wet air and dry Ar. It was shown that application of SPS in case of nanocrystalline BCYI allows to reduce the sintering time, and in case of microcrystalline BCYI application of SPS after CS allows to improve hardness and total conductivity through reduction of grain boundary resistance.

Download English Version:

<https://daneshyari.com/en/article/5437374>

Download Persian Version:

<https://daneshyari.com/article/5437374>

[Daneshyari.com](https://daneshyari.com)