

# Author's Accepted Manuscript

Room temperature deposition of functional ceramic films on low-cost metal substrate

Neamul H Khansur, Udo Eckstein, Lisa Benker, Ulrike Deisinger, Benoit Merle, Kyle G Webber



www.elsevier.com/locate/ceri

PII: S0272-8842(18)31455-X  
DOI: <https://doi.org/10.1016/j.ceramint.2018.06.027>  
Reference: CER118471

To appear in: *Ceramics International*

Received date: 8 November 2017  
Revised date: 13 May 2018  
Accepted date: 4 June 2018

Cite this article as: Neamul H Khansur, Udo Eckstein, Lisa Benker, Ulrike Deisinger, Benoit Merle and Kyle G Webber, Room temperature deposition of functional ceramic films on low-cost metal substrate, *Ceramics International*, <https://doi.org/10.1016/j.ceramint.2018.06.027>

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.

**Room temperature deposition of functional ceramic films on low-cost metal substrate**

Neamul H Khansur<sup>1\*</sup>, Udo Eckstein<sup>1</sup>, Lisa Benker<sup>2</sup>, Ulrike Deisinger<sup>3</sup>, Benoit Merle<sup>2</sup>, Kyle G Webber<sup>1</sup>

<sup>1</sup>*Department of Materials Science and Engineering, Friedrich-Alexander-Universität Erlangen-Nürnberg, 91058 Erlangen, Germany*

<sup>2</sup>*Department of Materials Science and Engineering, Friedrich-Alexander-Universität Erlangen-Nürnberg, 91058 Erlangen, Germany*

<sup>3</sup>*CeramTec GmbH, CeramTec-Platz 1, 91207 Lauf, Germany*

\*corresponding author: neamul.khansur@fau.de; +49 (0) 91318527557

**Abstract**

In various practical applications, such as high power actuators, high sensitivity sensors, and energy harvesting devices, polycrystalline piezoelectric films of 1-100  $\mu\text{m}$  thickness and sizes ranging from several  $\mu\text{m}^2$  to several  $\text{cm}^2$  are required. With conventional film deposition processes, such as sol-gel, sputtering, chemical vapor deposition, or pulsed laser deposition, it is difficult to fabricate films with higher thickness due to their low deposition rate and high interfacial stress. The aerosol deposition method (AD), a relatively new deposition technique, can be used to fabricate highly dense thick films at room temperature by the consolidation of submicrometer-sized ceramic particles on various ceramic, metal, glass, and polymer substrates. Ferroelectric  $\text{BaTiO}_3$  ceramic films of different thicknesses ranging from 1-30  $\mu\text{m}$  were fabricated on a low-cost metallic substrate at room temperature

Download English Version:

<https://daneshyari.com/en/article/7885828>

Download Persian Version:

<https://daneshyari.com/article/7885828>

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