

# **4th International Conference on Structural Nano Composites (NANOSTRUC 2018)**

IOP Conference Series: Materials Science and Engineering  
Volume 499

Berlin, Germany  
23 – 24 May 2018

ISBN: 978-1-5108-8537-0  
ISSN: 1757-8981

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

This work is licensed under a Creative Commons Attribution 3.0 International Licence. Licence details:  
<http://creativecommons.org/licenses/by/3.0/>.

No changes have been made to the content of these proceedings. There may be changes to pagination and minor adjustments for aesthetics.

Printed by Curran Associates, Inc. (2019)

For permission requests, please contact the Institute of Physics at the address below.

Institute of Physics  
Dirac House, Temple Back  
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481  
Fax: 44 1 17 920 0979

[techtracking@iop.org](mailto:techtracking@iop.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# Table of contents

## Volume 499

**4th International Conference on Structural NanoComposites (NANOSTRUC2018)**

**23–24 May 2018, Berlin, Germany**

**Accepted papers received: 6 February 2018**

**Published online: 3 April 2019**

### **Preface**

[4th International Conference on Structural NanoComposites \(NANOSTRUC2018\)](#)

[Peer review statement](#)

### **Papers**

[Effect of silver incorporation on the structural and morphological characteristics of RF sputtered indium oxide films](#)

Silpa Satheesh B, V. S Kavitha, Reshmi Krishnan, S. R Chalana, S Suresh, Prabhu Radhakrishna and V. P. MahadevanPillai.....1

[Thermal Diffusivity Behaviour of Multi-walled Carbon Nanotube Reinforced Ti6Al4V Metal Matrix Composites](#)

A Adegbenjo, B Obadele, P Olubambi, M Shongwe and S Adejuwon.....7

[Synthesis, structural and morphological property of a novel Pd/g-CN nano composite for gas sensing application](#)

A Ibrahim, U B Memon, J. Praveen Kumar, SP Duttgupta, R K Singh Raman, A Sarkar, G Pendharkar and S S V Tatiparti.....13

[Temperature effect on pull-off force for gold cantilevers array](#)

C Birleanu, M Pustan, F Serdean, V Merie and S Craciun.....19

[Temperature effect on the mechanical characteristics of niobium nitride thin films](#)

V Merie, M Pustan, G Negrea, C Bîrleanu and F Serdean.....23

[Analysis of humidity influence on adhesion and tribological properties of niobium nitride thin films](#)

F Serdean, M Pustan, V Merie, C Bîrleanu and H Crisan.....27

[On the uses of predictive toxicology to approve the use of engineered nanomaterials as biocidal active substances under the Biocidal Products Regulation](#)

M Blázquez, M.L. Fernández-Cruz, A. Gajewicz, T. Puzyn and E. Benfenati.....31

[Investigations on sensitivity enhancement of SPR biosensor using tunable wavelength and graphene layers](#)

K Bhavsar and R Prabhu.....39

[A correlation between nano and micro-hardness properties of TiN nanoparticles strengthened SAF 2205](#)

M R Mphahlele, S R Oke, O O Ige, O E Falodun, B A Obadele, P A Olubambi and M B Shongwe.....44

[Thermal Diffusivity Behaviour of Multi-walled Carbon Nanotube Reinforced Ti6Al4V Metal Matrix Composites](#)

A Adegbenjo, B Obadele, P Olubambi, M Shongwe and S Adejuwon.....50

[Effect of graphite addition on the tribological properties of pure titanium carbonitride prepared by spark plasma sintering](#)

G N Mekgwe, O J Akinribide, T Langa, B A Obadele, P A Olubambi and L M Lethabane.....56

[Effect of CrC-Ni on the tribological behaviour of WC cemented carbide.](#)

G N Mekgwe, W R Tuckart, O J Akinribide, T Langa, B A Obadele and P A Olubambi.....63

Development of a ring cavity-based fibre optic sensor for MR-compatible medical sensing applications

K Bhavsar, V Viswambaran, J Johny, M Kailasnath, A Melzer and R Prabhu.....68