

# **36th Eg-MRS International Conference**

IOP Conference Series: Materials Science and Engineering  
Volume 1269

Cairo, Egypt  
24 – 25 September 2022

ISBN: 978-1-7138-6428-8  
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 with permission by Curran Associates, Inc. (2023)

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

Proceeding of 36th International Conference of Material Sciences and Its Applications  
(36th Eg-MRS) 2022

*Arafa H. Aly*

Overview of the 36th International Conference, 36th Eg-MRS 202

*Arafa H. Aly*

SnO <sub>2</sub> Doping Effect on the Microstructural and Electrical Behavior of ZnO nanoparticles-Bi <sub>2</sub> O <sub>3</sub> Based Varistor Ceramics.....	1
<i>R. K. Sendi</i>	
Effect of Plasticisers and Zinc Oxide Nanoparticle Concentration on the Properties of Polyethylene Thin Films .....	11
<i>Abeer Ahmed Alluhaibi, Rabab Khalid Sendi</i>	
Correlating Stimulated Emission Phase to the Gain Spectra in Semiconductor Lasers.....	23
<i>Abanoub Mikhail, Safwat William Zaki Mahmoud</i>	
Evaluation of the Seismic Performance of Lightweight Concrete Multistory Buildings .....	31
<i>Yasser A.S Gamal, Mostafa Abd Elrazek</i>	
Experimental Study for the Comparison Between Core, Schmidt and Cubic Concrete Compressive Strength After Durability Test .....	42
<i>Mostafa Abd Elrazek, M M Rashwan, Mohammed H M Ahmed</i>	
Investigation of Solar Energy Potential and PV-Outputs in Rural and Desert Areas: Case Study Egypt .....	56
<i>Ashraf S. Khamees, U. Ali Rahoma, A. H. Hassan, Tarek Sayad, Mostafa Morsy</i>	
Assessment of Risk Factors Causing Delays in Road Construction in Egypt .....	70
<i>Yasser A.S Gamal, Elsayed Mohamed Abd Allah, Mina Maged, Mahmoud Enieb</i>	
Investigation the Effect of Particle Size and Annealing on the Performance of Nano/Micro Sized ZnO-Based Varistors .....	101
<i>Hend Alharthi, Rabab Sendi, Zaki Mohammed, Talal Althagafi</i>	
Titanium Dioxide (TiO <sub>2</sub> ) Concentration-Dependent Photovoltaic Cells Performance of PANi-TiO <sub>2</sub> Nanocomposite.....	112
<i>M. Abdelhamid Shahat, Ahmed Ghitas</i>	
ZnO Nanoparticles for Photocatalytic Methyl Orange Degradation: Hydrothermal Synthesis, Characterization, and Optimization.....	124
<i>M. Abdelhamid Shahat, Ahmed Ghitas, F. M. El-Hossary, A. M. Abd El-Rahman</i>	
Impact of Atmospheric Extinction Coefficient on the Solar Spectrum at Selective Wavelengths at Helwan in Egypt.....	137
<i>Heba Zenhom, Ahmed Ghitas, Mohamed M. Abdelwahab, Mohamed S. Alnawawy, Amir H. Hassan, Ahmed Abulwfa</i>	

**Author Index**