

25th Jubilee Technical and Scientific Conference “Transport, Ecology – Sustainable Development (EKO Varna 2019)

IOP Conference Series: Materials Science and Engineering
Volume 614

Varna, Bulgaria
16 - 18 May 2019

Editors:

**R. Hristov
R. Dimitrov**

ISBN: 978-1-5108-9821-9
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. (2020)

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

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
Web: www.proceedings.com

Table of contents

Volume 614

Technical and Scientific Conference - Transport, Ecology - Sustainable Development

16–18 May 2019, Varna, Bulgaria

Accepted papers received: 13 August 2019

Published online: 24 September 2019

Preface

[Preface](#)

[Eko Varna](#)

[Peer review statement](#)

Papers

[Mathematical simulation of stability of steady-state conditions for a road train](#)

O Sakno, D Moisia, T Kolesnikova and V Ollo.....1

[Assortment analysis of shutter valves for spark ignition engines timing systems](#)

J Matla.....12

[Method for determining the parameters of injection of Common Rail injectors](#)

Sergey G Belchev.....18

[Method for assessing the adequacy of a crankshaft strain state model](#)

S Belchev, K Todorov, G Chekelov and D Petkov.....24

[Study on the classification of actions aimed to reduce the fuel consumption of road vehicles in service](#)

L Luca, M M Pasare, R Dimitrov and T O Luca.....31

[An expert system for vehicle accident reconstruction](#)

D Lyubenov, V Mateev and G Kadikyanov.....37

[Research on the Possibility of Increasing the Power Output of a High - Speed Diesel Engine by Adding Compressed Natural Gas](#)

K Bogdanov and R Dimitrov.....44

[Transient operation of a direct injection diesel engine](#)

Z Ivanov and V Mihaylov.....48

[Study of the potential for reducing CO₂ emissions from road transport in Bulgaria](#)

R Hristov and S Stefanov.....54

[General Motors 6T automatic gearboxes - problems and methods for their removal](#)

S Stefanov and R Hristov.....61

[Modeling and investigation of a diesel engine with ethanol additives](#)

S Iliev and E Mitev.....68

[Modeling and investigation of a diesel engine with methanol additives](#)

S Iliev and E Mitev.....75

[Analysis of the Capabilities of Pistons Design using SOLIDWORKS models](#)

Delyan Petkov.....82

Hyperspectral environmental monitoring

N D Zdravcheva.....88

Flue Gas Desulfurization by Using Calcined Dolomite

S Baslayici, M Bugdayci, A Turan, L Oncel and E Acma.....95

Impact of road transport on the pollution of ambient air with particulate matter

T Uzuntonev and B Penchev.....103