

Bulletin of the Polish Academy of Sciences Technical Sciences (BPASTS)

Volume 73, No. 4

July 2025

CONTENTS – Regular Papers

Mechanical and Aeronautical Engineering, Thermodynamics

Feasibility study on in-situ heat injection of Tongchuan oil shale and tar-rich coal based on TG-DTG

Heping Yan, Xiurong Wu, Qiang Li, Yinghui Fang, Qingfeng Bu

Numerical simulation method of fork-flow condenser and the influence of fin structure characteristics

Kaiming Liu, Nianyong Zhou, Lianghui Liu, Benshi Han, Jing Li, Guanghua Tang, Jixiang Liu, Feifei Wang

Strain-controlled uniaxial fatigue of an AA2519 aluminium alloy sheet

Łukasz Pejkowski, Maciej Kotyk

Dynamics analysis on cavitation flow field of centrifugal pumps using modal order reduction

Yancheng Zhang, Lei Zhang, Cong Wang, Tengjiao Sun, Z. Li, Dezhi Jiang

Kronecker product-based solvers for higher-order finite element method Navier-Stokes simulations

Tomasz Służalec, Marcin Łoś, Mateusz Dobija, Maciej Paszynski

Design and implementation of non-circular gears based on target transmission ratio

Weizhen Song, Yong He

Estimation of CO₂ emissions from vehicles using machine learning and multi-model investigation

Mükerrem Sinem Mungan, Orhan Arpa

Control, Informatics and Robotics

The fast type-IV discrete sine transform algorithms for short-length input sequences

Marina Polyakova, Anna Witenberg, Aleksandr Cariow

Signed networks with Laplacian feedback: Observability and minimal sensor problem

Vijayakumar S. MUNI, Kallu Vetty Muhammed RAFEEK, Gudala Janardhana REDDY, Deena Sunil SHARANAPPA

A Markov chain model to determine optimal maintenance policy for production process in automotive company

Mohammad Saber Fallah Nezhad, Mohammad Hossein Kargar Shouroki, Shahaboddin Kharazmi

Civil Engineering

Bending behaviour of thin-walled perforated channel beams with modified cross sectional shape – Part 2: analytical calculations and FEM

Paweł Jasion, Aleksandra M. Pawlak, Piotr Paczos, Michał Plust, Marcin Rodak

Modeling responsive structures under external forces using an evolutionary algorithm

Szymon Jankowski, Waldemar Bober

Static analysis of a two-layer beam with a flexible interlayer connection

Katarzyna Misiurek, Monika Podwórna, Piotr Ruta, Olga Szyłko-Bigus, Rafał Idzikowski