

**archives
of thermodynamics
Vol. 39(2018), No. 4**

Contents

Z. DROŻYŃSKI: Steam condensation analysis in a power plant condenser	3
M. ARCHANA, B.J. GIREESHA, M.M. RASHIDI, B.C. PRASANNAKUMARA AND R.S.R. GORLA: Bidirectionally stretched flow of Jeffrey liquid with nanoparticles, Rosseland radiation and variable thermal conductivity	33
J. KLUSKA, M. OCHNIO, P. KAZIMIERSKI AND D. KARDAŚ: Comparison of downdraft and updraft gasification of biomass in a fixed bed reactor	59
R. MATYSKO Energetic efficiency of the combined ORC and gas turbine installation powered by the anaerobic sewage sludge stabilization system .	71
R.C. NAYAK, M.K. ROULB AND S.K. SARANGI: Natural convection heat transfer in heated vertical tubes with internal rings	85
T.A. WANI AND B.K. DAS: First principles calculations of thermodynamic properties of ZrB ₂	113
J. CIEŚLIŃSKI, T.Z. KACZMARCZYK AND B. DAWIDOWICZ: Dynamic characteristics of the proton exchange membrane fuel cell module	125
N. GUENDOUZ, N. BIBI-TRIKI, F. DIDI AND CH. ZIDANI: Numerical study of an air plane solar collector with baffle in zigzag form	141