



Vol. 2

2019

ISSN 2657-5922

Annual



ECO-ENERGETICS:
technologies, environment, law and economy

On the journal's website: <https://eco-EnergeticsJournal.eu/>
available:

- (a) online version (each article in open-access mode);
- (b) list of journal reviewers, rules for reviewing articles and guidelines for authors.

The online version is the reference version of the journal

Editor in Chief
Tadeusz Noc'h

First edition, 300 copies, Gdańsk 2019

Printing and binding

Sowa-Druk na Życzenie, www.sowadruck.pl, tel. +48 22 431 81 40
Sowa Sp. z o.o., 05-500 Piaseczno, ul. Raszyńska 13

© Copyright by Gdańskie Szkoła Wyższa, Gdańsk 2018-2019



P u b l i s h e r
GDAŃSKA SZKOŁA WYŻSZA
Gdańsk School of Higher Education
Poland, 80-875 Gdańsk, ul. Biskupia 24B
<https://gsw.gda.pl/wydawnictwo>
Orders: eco-energetics@gsw.gda.pl
<https://eco-EnergeticsJournal.eu/>

ISSN 2657-5922 (Print)
ISSN 2657-7674 (Online)

Table of Contents

Robert Aranowski, Bartosz Dębski, Iwona Cichowska-Kopczyńska	
The Influence of intensity mixing on the digestion process	9
Guenter Busch, Jochen Grossmann	
Trends in Biogas Technologies	15
Adam Cenian, Tadeusz Noch	
Low temperature district heating using waste heat from biogas plant.....	19
Maria Magdalena Estevez, Renata Tomczak-Wandzel, Kristine Akervold, Oddvar Tornes	
Co-digestion of waste from the salmon aquaculture sector with regional sewage sludge: effects on methane yield and digestate nutrient content.....	29
Janusz Gołaszewski	
Anaerobic digestion as an option of the end-of-life phase of bio-based products in the light of the EU regulations	35
Jochen Grossmann, Stefan Matthes, Jarosław Karwacki, Roman Kwidziński, Adam Tomaszewski, Marcin Lackowski, Adam Cenian	
New results from microalgae production and techniques	47
Jacek Kluska, Paweł Kazimierski, Mateusz Ochnio, Dariusz Kardaś	
Characteristic of tar content and syngas composition during beech updraft gasification	63
Izabela Konkol, Gaweł Solowski, Adam Cenian	
Monosubstrate fermentation of chicken manure after pretreatment using cold and hot water extraction	79
Adam Orzech	
Monosubstrate agricultural micro-biogas plant for liquid manure as a complement to the technological line in large-scale animal husbandry — practical verification	85
Anna Remiszewska-Skwarek, Małgorzata Szopińska, Aneta Łuczkiewicz, Archana Kasinath, Sylwia Fudala-Książek	
Thermal disintegration as a process supporting sewage sludge utilization.....	93
Piotr Sakiewicz, Jan Cebula, Krzysztof Piotrowski, Jolanta Bohdziewicz	
Methane fermentation of poultry manure — shortcomings and advantages of the technology: fermentation or co-fermentation?	97
Piotr Sakiewicz, Jan Cebula, Krzysztof Piotrowski, Jolanta Bohdziewicz	
Kinetics of methane fermentation of selected post-processed poultry beddings — possibilities of process intensification and limitations	105

Piotr Sakiewicz, Jan Cebula, Krzysztof Piotrowski, Jolanta Bohdziewicz Microstructural and chemical analysis of selected poultry bedding materials — potential substrates in agricultural biogas production technologies.....	113
Kai Schmedemann, Jan Sprafke, Michael Nelles, Andrea Schüch Showcases of industrial symbiosis related to anaerobic digestion at the project UBIS.....	123
Anna Sikora, Anna Detman, Aleksandra Chojnacka, Damian Mielecki Selected issues of anaerobic digestion based on the studies on hydrogen- and methane yielding bioreactors.....	129
Gaweł Sołowski, Izabela Konkol, Dariusz Czylkowski, Bartosz Hrycak, Katarzyna Siuzdak, Krzysztof Pastuszak, Adam Cenian Hydrogen Production in Institute of Fluid Machinery of Polish Academy of Science in Gdańsk — theory and practice	135
Stanisław Miecznikowski The EU's Greenhouse Gas emission challenges.....	145
Taras Boyko, Mariia Ruda, Mykhailo Paslavsky, Volodymyr Lentyakov Systemic approach to the analysis of ecological reliability of consortive protective ecotones	155
Natalia Kurhaluk Cobalt as a hypoxia-like factor in humans and animals.....	171
Aleksander Rezmer The influence of green energy production on FDI on the example of Poland.....	179
Promotional Material	187