



# ANNALES

UNIVERSITATIS MARIAE CURIE-SKŁODOWSKA

SECTIO AA

# CHEMIA



VOL. LIV/LV

LUBLIN

1999/2000

---

UNIWERSYTET MARIJ CURIE-SKŁODOWSKIEJ  
ISSN 0137-6853



# ANNALES

UNIVERSITATIS MARIAE CURIE-SKŁODOWSKA

# K O M I T E T   R E D A K C Y J N Y

REDAKTOR NACZELNY

Grzegorz Leopold Seidler

ZASTĘPCY REDAKTORA NACZELNEGO

Wiesław Skrzydło, Wiesław Śladkowski

REDAKTORZY SEKCJI

A	MATHEMATICA	Adam Bielecki, Jan Krzyż
AA	CHEMIA	Władysław Rudziński
AAA	PHYSICA	Jan Siewewiesiuk
B	GEOGRAPHIA, GEOLOGIA ETC.	Józef Wojtanowicz
C	BIOLOGIA	Zbigniew Lorkiewicz
D	MEDICINA	Stanisław Bryc
DD	MEDICINA VETERINARIA	Zdzisław Gliński
DDD	PHARMACIA	Romuald Langwiński
E	AGRICULTURA	Adam Szember
EE	ZOOTECHNICA	Marian Budzyński
EEE	HORTICULTURA	Maria Tendaj
F	HISTORIA	Wiesław Śladkowski
FF	PHILOLOGIAE	Alina Aleksandrowicz
G	IUS	Wiesław Skrzydło, Antoni Pieniążek — zastępca redaktora
H	OECONOMIA	Ryszard Orłowski
I	PHILOSOPHIA — SOCIOLOGIA	Zdzisław Cackowski
J	PAEDAGOGIA — PSYCHOLOGIA	Stanisław Popek
K	POLITOLOGIA	Jan Jachymek



# ANNALES

UNIVERSITATIS MARIAE CURIE-SKŁODOWSKA

SECTIO AA

## CHEMIA

3. <i>The application of temperature scanning to adsorption studies.</i> B. W. Wojciechowski	23
4. <i>FTIR spectroscopy and interaction potentials of some small molecules adsorbed on C<sub>60</sub>.</i> M. Poltan	43
5. <i>Current state of investigation of adsorption and ion exchange in Ukkouli.</i> T. C. Krasimirov	63
6. <i>Catalysis, a younger generation.</i> M. Jędrzejewska, T. Borowiecki, A. Kocik	85
7. <i>Spreading kinetics for low viscosity n-alkanes on a water surface as recorded by the high-speed video.</i> J. Dralich and J. D. Müller	105
8. <i>Prediction of hydrophobic interactions of a mineral from its surface free energy components in aspect of its floatability.</i> E. Chibowski and L. Holyst	117
9. <i>The correlation between the surface free energy of the anionic surfactant and its free energy of adsorption and desorption.</i> B. Jędrzejewicz, A. Zdrzunicka and W. Wójcik	133
10. <i>Reversible and irreversible adsorption of gold from cyanide solutions onto carbonaceous adsorbents of various flow microcalorimetry.</i> J. Zajac	151
11. <i>Theory and simulation of the adsorption of a monolayer.</i> D. Ueda and J. D. Henderson	171
12. <i>A four layer model for bivalent cations adsorption at electrolyte/solid interface.</i> S. G. Kozlov and J. R. van Wazer	187



REDAKCJA  
WŁADYSŁAW RUDZIŃSKI

REDAKCJA WYDAWNICZA  
LECH MALISZEWSKI

PROJEKT OKŁADKI  
I STRON TYTUŁOWYCH  
JERZY DURAKIEWICZ

OPRACOWANIE TECHNICZNE,  
SKŁAD I ŁAMANIE  
KRZYSZTOF NIESZPOREK

KOREKTA TEKSTÓW  
*w języku angielskim*  
JADWIGA BRANICKA

Curricula vitae zamieszczone w niniejszym tomie zostały opublikowane bez zmian, w formie, w jakiej zostały nadesłane przez Autorów.

ISSN 0137-6853

WYDAWNICTWO UNIWERSYTETU MARII CURIE-SKŁODOWSKIEJ  
20-031 Lublin, Pl. Marii Curie-Skłodowskiej 5, tel. (0-81) 537-53-02, (kolportaż, fax) 537-53-04

DRUK: ZAKŁAD POLIGRAFII WYDAWNICTWA UMCS

<http://press.umcs.lublin.pl>



## TABLE OF CONTENTS

<i>Welcome to the Faculty of Chemistry at Maria Curie-Skłodowska University.</i> W. Rudziński .....	vii
---	-----

### PHYSICAL CHEMISTRY

1. <i>Chemistry curriculum for the next century.</i> E. Matijević .....	1
2. <i>The future of scientific journals in the electronic age.</i> W. A. Steele.....	9
3. <i>The application of temperature scanning to adsorption studies.</i> B. W. Wojciechowski.....	23
4. <i>FTIR spectroscopy and interaction potentials of some small molecules adsorbed on C<sub>60</sub>.</i> M. Folman .....	43
5. <i>Current state of investigations in surface chemistry, adsorption and ion exchange in Ukraine.</i> Yu.I.Tarasevich .....	63
6. <i>Catalysis, a younger sister of chemical technology.</i> J. Ryczkowski, T. Borowiecki, A. Machocki and D. Nazimek .....	85
7. <i>Spreading kinetics for low viscosity n-alkanes on a water surface as recorded by the high-speed video system.</i> J. Drelich and J. D. Miller ...	105
8. <i>Prediction of hydrophobicity/hydrophilicity of a mineral from its surface free energy components in aspect of its flotability.</i> E. Chibowski and L. Hołysz.....	117
9. <i>The correlation between the surface free energy of the anionic surfactant and its free energy of adsorption and micellization.</i> B. Jańczuk, A. Zdziennicka and W. Wójcik .....	133
10. <i>Reversible and irreversible adsorption of gold from cyanide solutions onto carbonaceous adsorbents measured by flow microcalorimetry.</i> J. Zajac .....	151
11. <i>Theory and simulation of the electrical double layer.</i> D. Boda and D. Henderson .....	171
12. <i>A four layer model for bivalent cations adsorption at electrolyte/oxide interface.</i> W. Rudziński, R. Charmas, W. Piasecki and K. Bucior .....	187
13. <i>Electrical equivalent circuits and electrochemical impedance spectroscopy.</i> K. Darowicki, S. Krakowiak and J. Orlikowski .....	205

EOC-1/2000/1197

14. *Description of the mixed polyethyleneglycoles  $N,N'$ -dimethylthiourea adsorption layer on a mercury electrode and its effect on the electroreduction of Zn(II).* J. Saba and G. Dalmata ..... 217
15. *An application of the Green Functions Method to the solution of some electrochemical paradoxes on metallic surfaces.* S. Romanowski ..... 233
16. *On the ordering phenomena in adsorbed layers.* A. Patrykiewicz ..... 249
17. *The Generalized Gaussian Model for Heterogeneous Surfaces: Achievements and Perspectives.* G. Zgrablich ..... 285
18. *Adsorption characterization of structural and surface properties of active carbons.* J. Choma and M. Jaroniec ..... 311
19. *Freezing behavior in porous materials: Theory and experiment.* M. Sliwinska-Bartkowiak, R. Radhakrishnan, K. E. Gubbins and K. Kaneko ..... 323
20. *Structural - energetic heterogeneity effects on adsorption of aromatics in silicalite.* P. Szabelski and J. Narkiewicz-Michałek ..... 341

## ORGANIC AND INORGANIC CHEMISTRY

21. *Tautomerism of 1,3,4-thiadiazole. Part II.* L. Strzemecka ..... 363
22. *Tautomerism of 1,3,4 - thiadiazole. Part III.* L. Strzemecka ..... 379
23. *Synthesis, structure and properties of 2-dibenzofurylthioisopropylacetic acid and its derivatives.* W. Podkościelny, H. Maziarczyk and D. Wdowicka ..... 393
24. *Influence of temperature on the hydration equilibria and phase transitions. IV. Isothermal dehydration of  $La(NO_3)_3 \cdot 6H_2O$ .* J. Harkot ..... 401
25. *Synthesis of 1,2,4-triazolin-5-one derivatives.* M. Dobosz and M. Pitucha ..... 421