

## Chimica Techno Acta (eISSN 2411-1414)

Scientific and Technical Open Access Journal

Distributed for free

Established in 2014/Published four times per year

2023 | Vol. 10 | No. 4

This issue was published on 10.01.2024

**Founded and published by Ural Federal University**

19 Mira St., Ekaterinburg 620002, Russia

### Editorial Board

#### Editor-in-Chief

Dmitry A. Medvedev, Institute of High Temperature Electrochemistry UB RAS;  
Ural Federal University, Ekaterinburg, Russia

#### Editors

Evgeny V. Antipov, Moscow State University, Moscow, Russia  
Vladimir A. Cherepanov, Ural Federal University, Ekaterinburg, Russia  
Zhi-Jin Fan, Nankai University, Tianjin, China  
Victor V. Gusarov, Ioffe Institute, Saint Petersburg, Russia  
Vladislav V. Kharton, Institute of Solid State Physics, Chernogolovka, Russia  
Ekaterina Kozlova, Boreskov Institute of Catalysis, Novosibirsk, Russia  
Antoine Maignan, CRISMAT Laboratory, ENSICAEN, Caen, France  
Alexander A. Mikhailovsky, University of California, Santa Barbara, United States  
Farid Orudzhev, Immanuel Kant Baltic Federal University, Kaliningrad, Russia  
Pavel L. Padnya, Kazan Federal University, Kazan, Russia  
Vladimir V. Pankov, Belarusian State University, Minsk, Belarus  
Sougata Santra, Ural Federal University, Ekaterinburg, Russia  
Shuqin Song, Sun Yat-sen University, Guangzhou, China  
Nadezda V. Tarakina, Fritz Haber Institute, Berlin, Germany  
Sebastiano Tomassetti, Marche Polytechnic University, Ancona, Italy  
Panagiotis Tsiakaras, University of Thessaly Greece, Greece  
Valentina V. Utochnikova, Lomonosov Moscow State University, Moscow, Russia  
Yi Wang, Sun Yat-sen University, Guangzhou, China  
Andrey Yu. Zuev, Ural Federal University, Ekaterinburg, Russia  
Grigory V. Zyryanov, Ural Federal University, Ekaterinburg, Russia

#### Managing Editor

Inna A. Starostina, Institute of High Temperature Electrochemistry UB RAS;  
Ural Federal University, Ekaterinburg, Russia

#### Copyeditors

Anna V. Kasyanova, Institute of High Temperature Electrochemistry UB RAS, Ekaterinburg, Russia  
Vladimir V. Sereda, Ural Federal University, Ekaterinburg, Russia

#### Scientific illustrator

Anna O. Rudenko, Institute of High Temperature Electrochemistry UB RAS, Ekaterinburg, Russia

## Contents

### 2023104E

FROM EDITORS / Regular Issue

Dmitry A. Medvedev

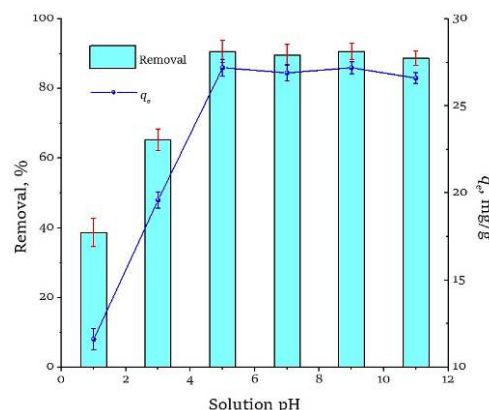
### Acknowledgment of Chimica Techno Acta's reviewers for 2023

### 202310401

ARTICLE / Regular Issue

Hai D. Tran, Dinh Quan Nguyen

### Study on methylene blue adsorption using cashew nut shell-based activated carbon

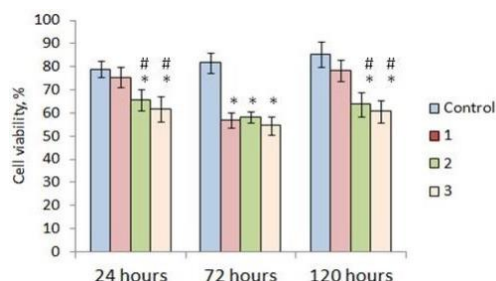


### 202310402

LETTER / Regular Issue

Maria Ulitko, Yulia Antonets, Irina Antropova,  
Albert Mullabaev, Elena Volokitina, Anna Kasyanova,  
Ekaterina Loginova, Nataliia Tarasova

### Ceramic materials based on lanthanum zirconate for the bone augmentation purposes: cytocompatibility in a cell culture model

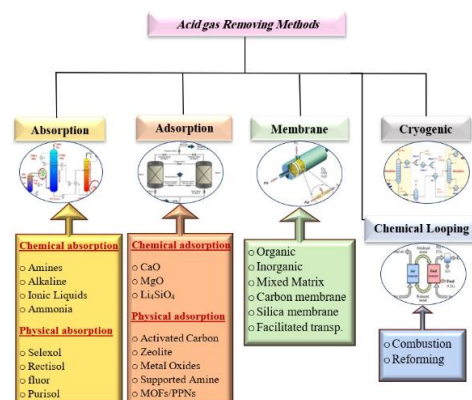


### 202310403

REVIEW / Regular Issue

Iltifat Hameed Saud, Forat Yasir Aljaberi

### The most effective techniques of industrial purification processes: a technical review

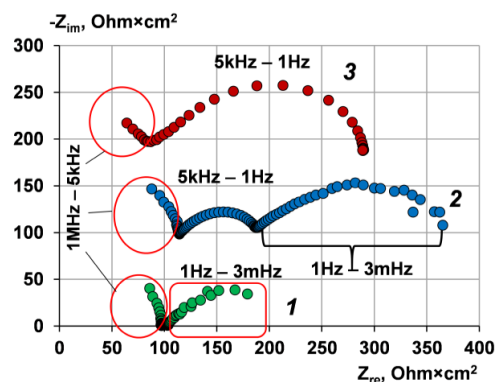


## 202310404

ARTICLE / Regular Issue

Denis A. Bondarev, Aslan R. Achoh,  
Alexander V. Bepalov, Stanislav S. Melnikov,  
Mikhail V. Sharafan, Viktor I. Zabolotskiy

### Use of electrochemical impedance spectroscopy to assess the stability of the anion exchange membrane MA-41, modified by poly-N,N- diallylmorpholine bromide in overlimiting current modes

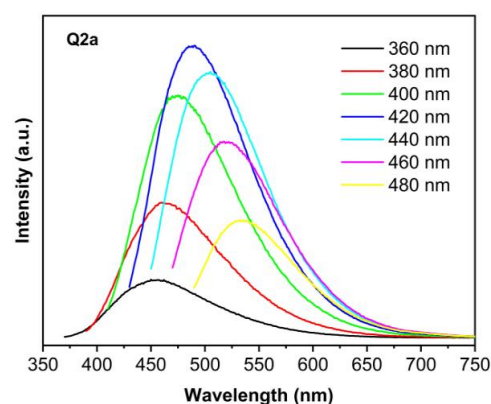


## 202310405

ARTICLE / Regular Issue

Khuong T. Truong, Thach H. Pham, Khai V. Tran

### The impact of dimethylformamide on the synthesis of graphene quantum dots derived from graphene oxide



## 202310406

CORRECTION / Regular Issue

Khuong T. Truong, Thach H. Pham, Khai V. Tran

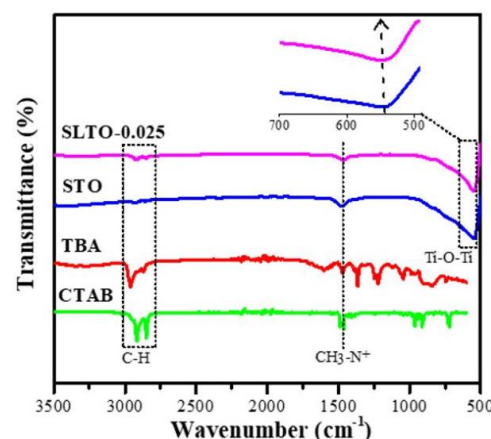
### Corrigendum to The impact of dimethylformamide on the synthesis of graphene quantum dots derived from graphene oxide

## 202310407

ARTICLE / Regular Issue

Yulia Eka Putri, Humaira Faradilla, Dedi Satria,  
Diana Vanda Wellia

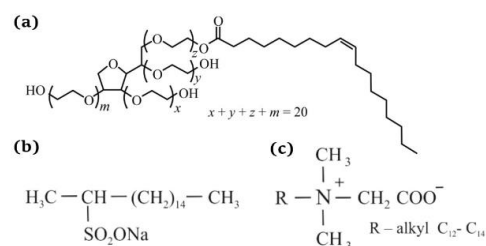
### Facile synthesis of lanthanum-doped SrTiO<sub>3</sub> nanocubes mediated by cetyltrimethylammonium bromide and tert-butylamine under solvothermal condition and their tunable electrical properties



## 202310408

LETTER / Regular Issue

Lev Danilin, Tatyana Lugovitskaya,  
Elvira Kolmachikhina, Denis Rogozhnikov



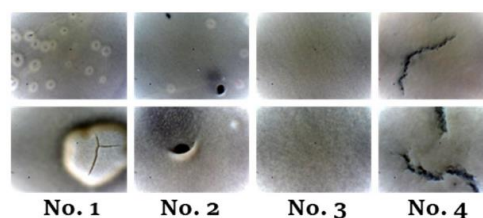
### Colloid-chemical properties of surfactant–nitric acid–water systems

## 202310409

ARTICLE / Regular Issue

Efim Lyalin, Larisa Pershina, Evgeniya Il'ina,  
Konstantin Druzhinin, Semen Belyakov

### Features of forming a low-temperature cubic Li<sub>7</sub>La<sub>3</sub>Zr<sub>2</sub>O<sub>12</sub> film by tape casting

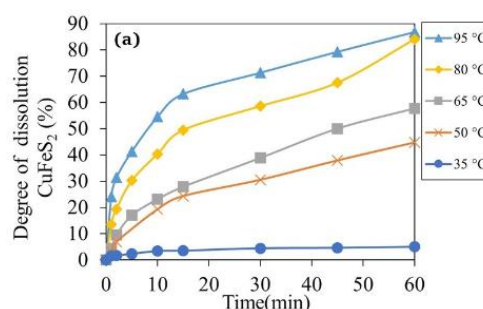


## 202310410

LETTER / Regular Issue

Yuri Shklyayev, Oleg Dizer, Tatiana Lugovitskaya,  
Dmitry Golovkin, Denis Rogozhnikov

### Kinetics of nitric acid leaching of bornite and chalcopyrite

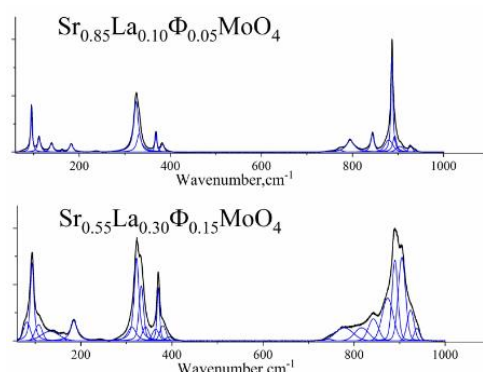


## 202310411

ARTICLE / Regular Issue

Zoya A. Mikhaylovskaya, Alexandra V. Klimova,  
Sofia A. Petrova, Elizaveta A. Pankrushina,  
Elena S. Buyanova

### Comparative characteristic of Bi- and La- doped (Ca/Sr)MoO<sub>4</sub>-based materials with a defect scheelite-type structure

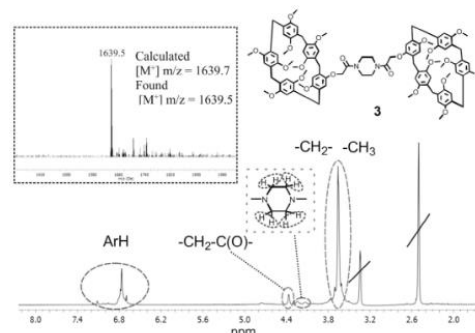


## 202310412

ARTICLE / Regular Issue

Dmitriy N. Shurpik, Yulia I. Aleksandrova,  
Lyaysan I. Makhmutova, Alan A. Akhmedov,  
Ivan I. Stoikov

### Towards nanomaterials with tubular pores: synthesis and self-assembly of bis-pillar[5]arene

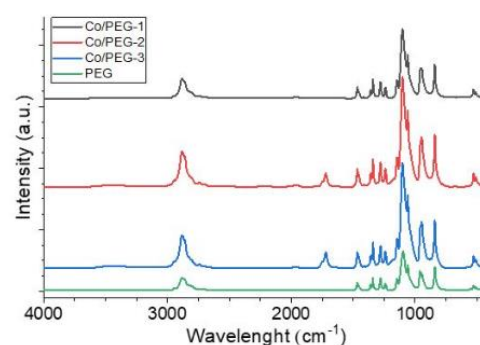


## 202310413

ARTICLE / Regular Issue

Anastasia Burmatova, Artur Khannanov,  
Liana Zubaidullina, Dmitry Emelianov, Olga Mostovaya,  
Ivan Stoikov, Nikolay Ulakhovich, Marianna Kuttyreva

### Towards controlling the morphology of cobalt loaded nanocomposites in polyol process with polyethylene glycol

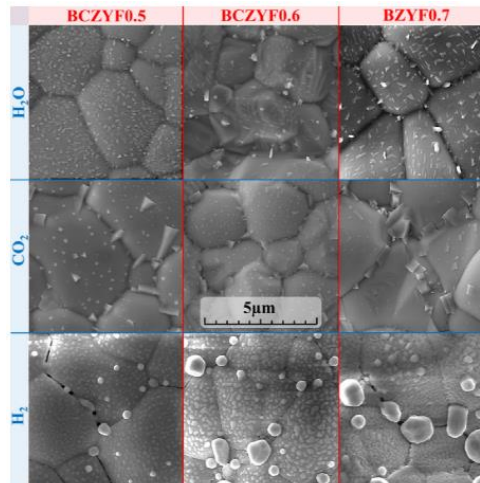


## 202310414

ARTICLE / Regular Issue

Liana Tarutina, Inna Starostina, Gennady Vdovin,  
Svetlana Pershina, Emma Vovkotrub, Anna Murashkina

### Chemical stability aspects of BaCe<sub>0.7-x</sub>Fe<sub>x</sub>Zr<sub>0.2</sub>Y<sub>0.1</sub>O<sub>3-δ</sub> mixed ionic-electronic conductors as promising electrodes for protonic ceramic fuel cells

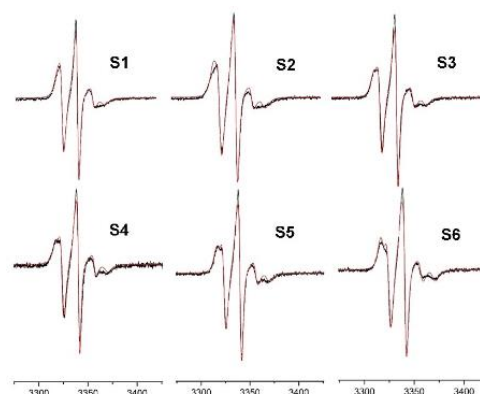


## 202310415

ARTICLE / Regular Issue

Rita S. Alqubelat, Alena D. Kuznetsova,  
Denis O. Antonov, Maxim A. Mironov

### Combination of fluorescent and spin labels: a powerful method for the optimization of hydrophilic membranes for the separation of oil-in-water emulsions



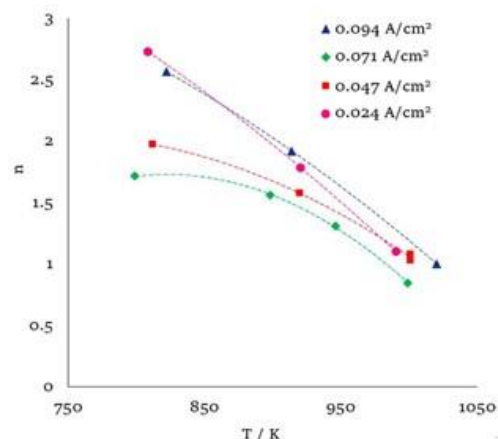


**202310416**

ARTICLE / Regular Issue

Oleg V. Tokarev, Vladimir A. Volkovich

### Anodic dissolution of gallium in alkali metal chloride melts

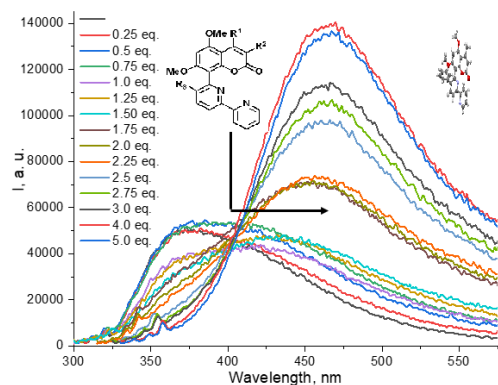


**202310417**

ARTICLE / Regular Issue

Ainur D. Sharapov, Ramil F. Fatykhov,  
Igor A. Khalymbadzha, Dmitry S. Kopchuk,  
Igor L. Nikonov, Anastasiya P. Potapova,  
Yaroslav K. Shtaitz, Pavel A. Slepukhin

### Conjugates of 8-[2,2'-bipyridinyl]coumarins as potential chemosensors for $\text{Al}^{3+}$ , $\text{Cu}^{2+}$ , $\text{Cd}^{2+}$ , $\text{Zn}^{2+}$ ions: synthesis and photophysical properties

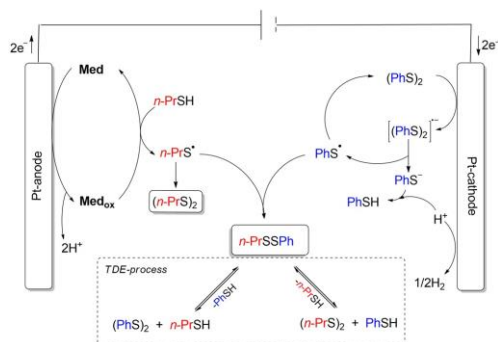


**202310418**

ARTICLE / Regular Issue

Daria A. Burmistrova, Ivan V. Smolyaninov,  
Nadezhda T. Berberova

### The transformations of thiols and their dimers in the redox-mediated thiol-disulfide exchange reaction



**202310419**

LETTER / Regular Issue

Maria V. Kaneva, Anastasia K. Bachina,  
Artem A. Lobinsky

**Novel direct synthetic route of 2D Prussian Blue  
analogue, nanocrystalline CuHCF,  
as highly effective cathode materials  
for Zn-ion supercapacitors**

