

# CONFERENCE ABSTRACTS

International Student Conference

“Science and Progress”

## DAAD



Санкт-Петербургский  
государственный  
университет

Freie Universität



Berlin



German-Russian  
Interdisciplinary  
Science Center

St. Petersburg — Peterhof  
November, 9–11  
2021

CONFERENCE ABSTRACTS  
International Student Conference “Science and Progress” —  
SPb.: SBORKA, 2021-224 p.p.  
ISBN 978-5-85263-109-1

ISBN 978-5-85263-109-1



9 785852 631091

## **Organizing Committee**

Prof. Dr. E. Kustova  
Prof. Dr. A. Manshina  
Prof. Dr. E. Rühl

Chair of the Organizing Committee, SPbSU  
G-RISC Scientific Coordinator, SPbSU  
G-RISC Scientific Coordinator, FU Berlin

## **Program Committee**

Dr. A. Gubal  
Dr. D. Mamonova  
Prof. Dr. D. Kirsanov  
Prof. Dr. R. Islamova  
Prof. Dr. A. Penkova  
Prof. Dr. E. Grachova  
Prof. Dr. V. Troyan  
Prof. Dr. T. Mokaev  
Prof. Dr. N. Kuznetsov  
Prof. Dr. N. Resnina  
Prof. Dr. E. Filatova  
Prof. Dr. N. Zernov  
Prof. Dr. M. Bisyarin  
Prof. Dr. N. Timofeev  
Prof. Dr. Yu. Chizhov  
Prof. Dr. Yu. Pismak  
Prof. Dr. N. Tsvetkov  
Prof. Dr. V. Chizhik  
Dr. V. Chirkov

Institute of Chemistry, SPbSU  
Institute of Chemistry, SPbSU  
Institute of Chemistry, SPbSU  
Institute of Chemistry, SPbSU  
Institute of Chemistry, SPbSU  
Institute of Chemistry, SPbSU  
Faculty of Physics, SPbSU  
Faculty of Mathematics and Mechanics, SPbSU  
Faculty of Mathematics and Mechanics, SPbSU  
Faculty of Mathematics and Mechanics, SPbSU  
Faculty of Physics, SPbSU  
Faculty of Physics, SPbSU  
Faculty of Physics, SPbSU  
Faculty of Physics, SPbSU  
Faculty of Physics, SPbSU  
Faculty of Physics, SPbSU  
Faculty of Physics, SPbSU  
Faculty of Physics, SPbSU  
Faculty of Physics, SPbSU

## **Technical Committee**

Head of the Technical Committee - Maksim Melnik  
Members – Maksim Renev, Maria Serova, Daria Mamonova,  
Daria Kozina, Vassily Medvedev, Maria Kochetkova, Roman Shilov,  
Danila Myznikov, Danil Krutin, Vlada Glavinskaya, Anna Bechina.  
Desktop publishing – Aleksei Serov

## **Contacts**

<https://events.spbu.ru/events/sp-2021>  
[science-and-progress@spbu.ru](mailto:science-and-progress@spbu.ru)



# **A. Chemistry**

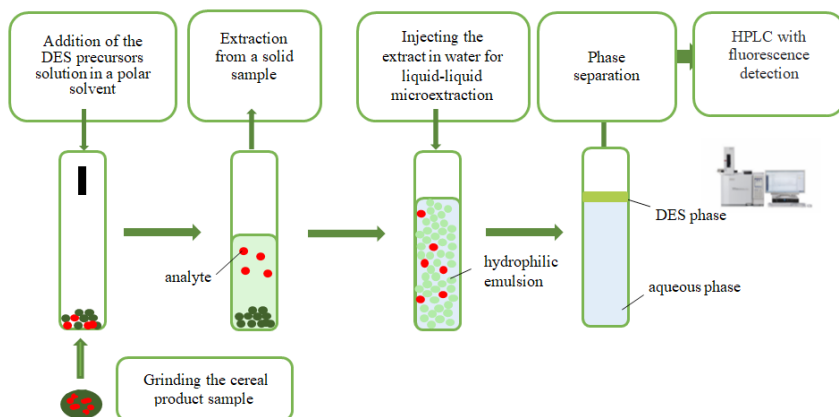
# Hydrophobic Deep Eutectic Solvents for the Separation of Zearalenone from Bread Followed by Liquid Chromatographic Determination

Pavlova K.V.<sup>1</sup>, Pochivalov A.S.<sup>1</sup>, Bulatov A.V.<sup>1</sup>  
st067859@student.spbu.ru

<sup>1</sup>*Saint Petersburg State University, Saint Petersburg, Russia*

Deep eutectic solvents (DES), having similar properties to ionic liquids, are increasingly used in various fields of analytical chemistry. They have been proven to be an environmentally safe alternative to commonly used toxic organic extractants such as chlorinated organic solvents. DES is a mixture of two or more precursors with a melting point lower than that of the individual components. The composition of DES can be easily varied, which allows tuning its properties for selective and efficient extraction of the target compound. In this study, hydrophobic DESs based on menthol and long-chain alcohols, stable in aqueous medium, were studied for the separation of zearalenone from bread for the first time.

The main problems of food analysis are low concentrations of analytes and the complexity of matrices, that contain many interfering components, so the analyte should be extracted and preconcentrated prior to its determination. To solve this analytical task, an effective, fast and sensitive dispersive liquid-liquid microextraction method based on the hydrophobic deep eutectic solvents was developed in this work. The suggested sample preparation procedure (Fig. 1) was coupled to high-performance liquid chromatography with fluorometric detection and allowed zearalenone quantification in food at trace level.



*Fig. 1. Sample preparation procedure.*

**Acknowledgments:** This work was supported by the Russian Science Foundation (project No 21-13-00020, <https://rscf.ru/project/21-13-00020/>).

Electrochemical Stability of Aqueous System Containing Lithium and Cesium Acetates.

*Mukhin Kirill, Pestova O.N., Kamenskii Mikhail* ..... 49

Novel Pervaporation and Ultrafiltration Membranes Based on Polyphenylenesulfone Modified by Titanium Dioxide

*Myznikov Danila, Kuzminova A.I., Dmitrenko M.E., Zolotarev A.A., Penkova A.V.* ..... 50

Supramolecular Structure for Creating Functional Materials

*Nebalueva Anna, Timralieva A.A., Skorb E.V.* ..... 51

Microextraction of Melamine from Dairy Products in Deep Eutectic Solvent Prior to HPLC-UV Analysis

*Nizov Egor R., Shishov A.Y.* ..... 52

Study of Mass and Charge Transfer at Low Temperatures in Salen Type Nickel Polymer Complexes

*Novoselova Julia, Alekseeva E.V., Levin O.V.* ..... 53

Influence of the Microelements on Anticancer Metabolites Biosynthesis in Basidiomycetes

*Ostrokhisshko Anastasiya, Ashikhmina M.S., Pomytkina A.V., Levkina L.Y., Lavrentev F.V., Skorb E.V.* ..... 54

Pyridyl-functionalized Phosphinine as a Ligand for Novel Cu(I) Complexes

*Paderina Aleksandra, Grachova E.V., Müller C.* ..... 55

Diastereoselective Synthesis of  $\delta$ -Lactams *via* Two-component Castagnoli-Cushman Reaction of Imines and Glutaric Acid Derivatives

*Paramonova Polina, Bakulina O., Kalinin S., Krasavin M.* ..... 56

Synthesis of NHC-Stabilized Triphosphenylborane

*Parfeniuk T. N., Szlosek R., Scheer M., Timoshkin A.Y.* ..... 57

Hydrophobic Deep Eutectic Solvents for the Separation of Zearalenone from Bread Followed by Liquid Chromatographic Determination

*Pavlova K.V., Pochivalov A.S., Bulatov A.V.* ..... 58

Polyelectrolyte Multilayers for Robust Carbon Fiber-Based Potentiometric Ion Sensing and Correlation between Elemental Constituent in Blood and Urine

*Pershina Liubov, Grabeklis A.R., Isankina L.N., Skorb E.V., Nikolaev K.G.* ... 59