Kata Sebestyén - Saszet

ABOUT ME

I'm a chemical engineer, scientific researcher, and Ph.D. candidate in physics, specifically materials science and heterogeneous photocatalysis. Since my undergraduate studies, my research work focused on the synthesis and characterization of potentially photocatalytically active semiconductors. During my Ph.D. years, my academic focus has taken an interdisciplinary direction, involving aspects of ecotoxicology and mineralogy, broadening my perspective and enriching my work on photocatalysts. In parallel with my Ph.D. studies, I have been working as an analysis engineer in product validation within the automotive industry since 2023, where I apply my materials science background and continue to grow in a dynamic, industry-focused setting.

WORK EXPERIENCE

02/2023 Cluj-Napoca, Romania
ANALYSIS ENGINEER ROBERT BOSCH

- Failure analysis investigations of electronic control units after design validation testing.
- Product analyses with destructive and non-destructive physical and chemical analysis methods.
- Advanced material characterization (SEM/EDX, XPS, FT-IR, DSC/TGA, DMA).
- Equipment responsible for SEM/EDX.

11/2018 – 01/2023 Cluj-Napoca, Romania
SCIENTIFIC RESEARCH ASSISTANT BABEȘ-BOLYAI UNIVERSITY, INSTITUTE FOR INTERDISCIPLINARY RESEARCH ON BIO-NANO-SCIENCES

- Synthesis of metal oxide semiconductors and composite material preparation.
- Morpho-structural, optical, and surface characterization of nanomaterials.
- Processing and interpretation of measurement.
- Formulating proposals for the development of the synthesis method.
- Applied analysis techniques: X-ray diffraction (XRD); UV-Vis, FT-IR, and diffuse reflectance spectroscopy; X-Ray photoelectron spectroscopy (XPS); High-performance liquid chromatography (HPLC), Zeta Potential, Dynamic light scattering analysis (DLS), and Optical Microscopy. Evaluation of SEM and TEM micrographs.

Projects:
PN-III-P1-1.2-PCCDI-2017-0350 Graphene4life - Using composite materials with graphene oxide to improve the performance of building and installation elements against fire action to ensure the protection of life in case of fire.
PN-III-P1-1.1-TE-2019-1318 Magnetite-semiconductor-based composites from natural and synthetic sources for water treatment processes.

EDUCATION AND TRAINING

10/2018 – CURRENT Cluj-Napoca, Romania
PH.D. IN PHYSICS Babeș-Bolyai University, Faculty of Physics, Doctoral School of Physics

Field of study Physics | **Thesis** TiO2 photocatalysts: environmental impact and alternatives

02/2017 – 07/2017 Veszprém, Hungary
ERASMUS+ MOBILITY PROGRAM University of Pannonia, Faculty of Engineering, Institute of Chemical and Process Engineering

Field of study Advanced Chemical Process Engineering

10/2016 – 07/2018 Cluj-Napoca, Romania

MASTER'S DEGREE IN CHEMICAL PROCESS ENGINEERING Babeș-Bolyai University, Faculty of Chemistry and Chemical Engineering

Field of study Advanced Chemical Process Engineering |

Thesis Photodegradation of phenol in the TiO2/WO3/Au photocatalyst system described by ANN modeling

10/2012 – 07/2016 Cluj-Napoca, Romania

BACHELOR'S DEGREE IN CHEMICAL ENGINEERING Babeș-Bolyai University, Faculty of Chemistry and Chemical Engineering

Field of study Chemistry and engineering of organic substances, petrochemistry and carbochemistry |

Thesis Hydrothermal preparation, investigation and potential applications of Bi2WO6 mixed oxides with novel morphology

PROFESSIONAL PRACTICUM

07/2015 – 08/2015

MVM Paks Nuclear Power Plant Ltd., Hungary

LANGUAGE SKILLS

Mother tongue(s): **HUNGARIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ROMANIAN	C1	C1	C1	C1	C1
ENGLISH	C1	C1	C1	C1	C1
GERMAN	B2	B2	B2	B2	B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DIGITAL SKILLS

Written content creation and editing

Proficient use of Microsoft Office software suite.

Data processing and analysis

Experienced Origin user, competent in CasaXPS use, basic ImageJ software knowledge.

Others

Basic knowledge of ChemCAD, Aspen, Solid Edge, ChemDraw, and MATLAB/Simulink software.

HONOURS AND AWARDS

24/09/2021

Augustin Maior Prize - for the best oral presentation delivered by a young scientist – Romanian Physics Society - Cluj- Napoca

For the oral presentation: *"TiO P25/Fe O / γ-Fe O photocatalytically active nanocomposites and the ecotoxicological effects of TiO P25 on the Lasius niger ant species"*, 12th International Conference on Physics of Advanced Materials (ICPAM-13), Sant Feliu de Guixols, Spain.

23/09/2015

First Place Prize - 21st International Conference on Chemistry – Hungarian Technical and Scientific Society of Transylvania

For the poster presentation: *"Fine-tuning of the hydrothermal synthesis parameters of Bi2WO6 microflowers and investigation of their applicability spectrum",* 21st International Conference on Chemistry, Sumuleu Ciuc, Romania

21/05/2015

Third Place Prize – 18th Transylvanian Scientific Student Conference on Real Sciences and Humanities – Hungarian Student Association of Cluj-Napoca

For the oral presentation of the paper with the title: *"Fine-tuning of the hydrothermal synthesis parameters of Bi2WO6 microflowers and investigation of their applicability spectrum",* 18th Transylvanian Scientific Student Conference on Real Sciences and Humanities, Cluj-Napoca, Romania

15/05/2014

First Place Prize – 17th Transylvanian Scientific Student Conference on Real Sciences and Humanities – Hungarian Student Association of Cluj-Napoca

For the oral presentation of the paper with the title: *"Hydrothermal synthesis of TiO2-based nanocrystals and investigation of their*
photocatalytic activity". 17th Transylvanian Scientific Student Conference on Real Sciences and Humanities, Cluj-Napoca, Romania.

PUBLICATIONS

Scopus Author ID: 56845589300

2025

Visible Light Active Natural Rutile Photocatalyst Obtained via Nano Milling

Authors: **Saszet, K.**; Almási, E.E.; Rácz, Á.; Bohács, K.; Todea, M.; Hernádi, K.; Pap, Z.; Baia, L.; Journal: Molecules

2025

Relation between shape-tailored CeO2 nanoparticles morphology and hemocompatibility and antimicrobial effect

Authors: Tóth, Zs.; Feraru, A.; **Saszet, K.**; Veréb, G.; Vodnar, D. C.; Todea, M.; Timar-Gabor, A.; Dave, A. K.; Sand, D.; Dreanca, A.; Magyari, K.; Baia, L.; Journal: Biomaterials Advances

2024

TiO2–Alginate–Chitosan-Based Composites for Skin Tissue Engineering Applications

Authors: Bobu, E.; **Saszet, K.**; Tóth, Z.-R.; Páll, E.; Gyulavári, T.; Baia, L.; Magyari, K.; Baia, M.; Journal: Gels

2023

Demonstration of effectiveness: Plant extracts in the tuning of BiOX photocatalysts' activity

Authors: Nikita Sharma, N.; **Saszet, K.**; Szabó, T.; Karajz, D.; Szilágyi, I. M.; Garg, S.; Pap, Zs.; Hernádi, K.; Journal: Catalysis Today

2022

Peculiarities on methyl orange adsorption by porous ZnIn2S4 prepared in different conditions

Authors: Cadiș, A. I.; Mureșan, L. E.; Perhaița, I.; Pop, L. C.; **Saszet, K.**; Barbu-Tudoran, L.; Borodi, G; Journal: Journal of Nanoparticle Research

2020

Morphological and structural investigation of the poly (vinyl chloride) / graphene oxide composites

Authors: Stingescu, L.; Cadar, C.; Cotet, L.C.; Baia, L.; **Saszet, K.**; Magyari, K.; Mihis, A. G.; Fort, C.I.; Stroe, M.; Matei, E.; Nila, A.; Anghel,
I.; Baia, M.; Baibarac, M.; Danciu, V.; Journal: Studia UBB Chemia

2018

Thiourea and Triton X-100 as shape manipulating tools or more for Bi2WO6 photocatalysts?

Authors: Kása, Zs.; **Saszet, K.**, Dombi, A.; Hernádi, K.; Baia, L.; Magyari, K.; Pap, Zs.; Journal: Materials Science in Semiconductor Processing

2016

Shape-controlled agglomeration of TiO2 nanoparticles. New insights on polycrystallinity vs. single crystals in photocatalysis

Authors: Vajda, K; **Saszet, K.**; Kedves, Zs.; Kása, Zs.; Danciu, V.; Baia, L.; Magyari, K.; Hernádi, K.; Kovács, G.; Pap, Zs.; Journal: Ceramics International

2016

Preparation of TiO2/WO3 composite photocatalysts by the adjustment of the semiconductors' surface charge

Authors: Baia, L.; Orbán, E.; Fodor, Sz.; Hampel, B.; Kedves, E. Zs.; **Saszet, K.**; Székely, I.; Karácsonyi, É.; Réti, B., Berki, P.; Vulpoi, A.; Magyari, K.; Csavdári, A.; Bolla, Cs; Coșoveanu, V.; Hernádi, K.; Baia, M.; Dombi, A.; Danciu, V.; Kovács,G.; Pap, Zs.; Journal: Materials Science in Semiconductor Processing