Synthesis and Characterization of New Nanostructured Catalysts Based on Transition Metals

Theme Implementation Process and Achievements

A. B. NALBANDYAN INSTITUTE OF CHEMICAL PHYSICS, NAS RA

LABORATORY OF CATALYSIS

PHD DAVIT DAVTYAN

REMOTE LABORATORIES FOUNDATION PROGRAM

22RL-007

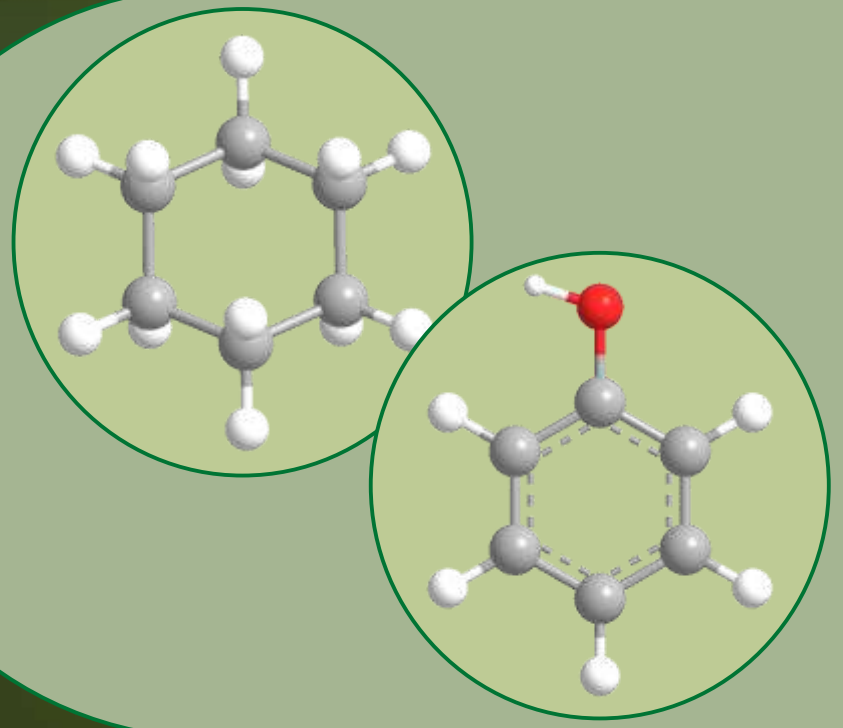
FlowCAT | A Bench-Top, High Pressure Flow Catalysis Platform

The FlowCAT system was successfully installed, enabling advanced continuous-flow catalytic studies. The method was implemented, validated, and applied in research practice, and the obtained data are presented in an article currently under review.

Visit to Lomonosov Moscow State University

Our team visited Lomonosov Moscow State University, gaining insights into advanced research practices and exploring opportunities for future collaboration.

New research program implementation



Our new research program explores advanced oxidation pathways under microwave irradiation of *phenol and cyclohexane*, aiming to develop efficient catalytic systems for producing value-added chemicals such as quinones, cyclohexanone. The focus is on green oxidants and sustainable reaction conditions.

Conference Participation & Scientific Exchange

We participated in the
New Emerging Trends in Chemistry
conference, sharing our research findings and interacting with international scientists. This experience fostered knowledge exchange, inspired new ideas, and strengthened professional collaboration.

Participation

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SCIENCE WEEK

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Learn & Work: YSU EXPO-2025

Laboratory of Catalysis

New members in our team

Svetlana Msryan
2nd year Bachelor's student

Gayane Harutyunyan
3rd year Bachelor's student

Sofi Petrosyan
2nd year Master's student

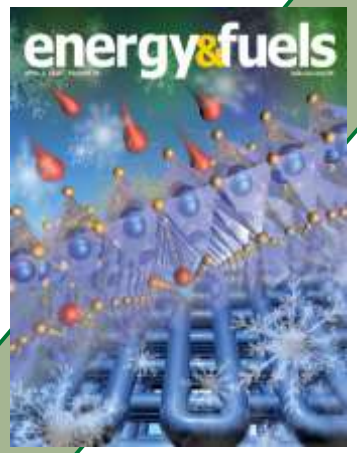
HORIZON EUROPE

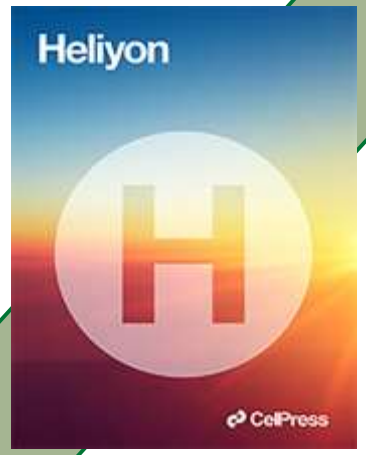
Proposal acronym: **DualPatH2**
HORIZON-CL5-2025-02-D2-08

COST Action Proposal OC-2025-1-28573
“ International Network for Nano-enabled Advanced Technologies, Ethics and Sustainability”

Articles

Two articles were published





Q1

Q1

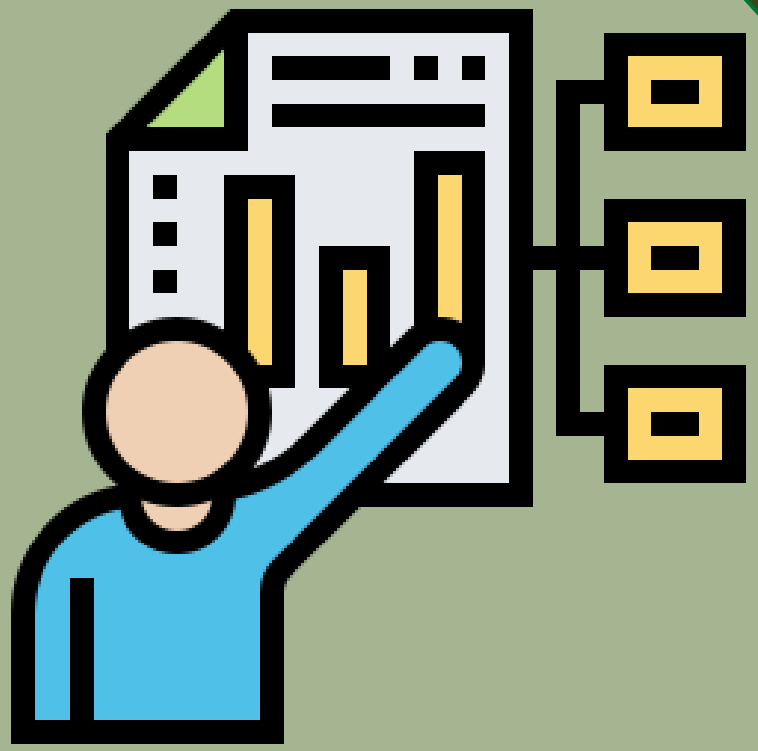
Two more are under review

Another one submitted.

Q1

Conclusion

1. Implementation of catalytic methods and successful installation of the FlowCAT system.
2. A team visit to Lomonosov Moscow State University was conducted.
3. Active development of the oxidation research program.
4. Engagement in conferences, Science Week, and the YSU Expo, enhancing visibility and knowledge exchange.
5. Expansion of the research team, strengthening overall capacity.
6. Two articles have been published, two are under review, and one has been submitted.
7. Future work focused on Horizon program initiatives and collaborative projects.



Acknowledgements

TAXPAYER

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RA MESCS HIGHER EDUCATION AND SCIENCE COMMITTEE

Laboratory of Catalysis

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OZM RESEARCH

LOMONOSOV MOSCOW STATE UNIVERSITY

ICP CSIC

TAL TECH

UNIVERSITY OF CHEMISTRY AND TECHNOLOGY PRAGUE

AARHUS UNIVERSITY

THANKS!

Laboratory of catalysis

PhD Davit Davtyan

Email: Davit87Davtyan@gmail.com

Phone: +374 93 622 191