**Theodora Ramantani**

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ABOUT MYSELF

Dr. T. Ramantani is a postdoctoral researcher at the Laboratory of Heterogeneous Catalysis in the Department of Chemical Engineering at the University of Patras in Greece. She completed her undergraduate and postgraduate studies in the same department and was awarded a Ph.D. in 2023. Today, her interests are mainly focused on hydrogen production by steam reforming of propane and LPG, as well as in the development of catalytic systems for CO₂ hydrogenation to value-added products and carbon separation during the pyrolysis of natural gas.

EDUCATION

**12.2017 – 03.2023 Patras, Greece**

Doctoral Degree, Department of Chemical Engineering, University of Patras

*Ph.D. Dissertation*: Study of the steam reforming of LPG over supported noble-metal catalysts and perovskite oxides

**09.2015 – 10.2017, Patras, Greece**

Master of Science (MSc) with specialization in “Energy and Environment”, Department of Chemical Engineering, University of Patras

*Master's Thesis*: Catalytic hydrogenation of carbon dioxide to produce valuable chemical compounds

**09.2010 – 09.2015, Patras, Greece**

Diploma, Department of Chemical Engineering, University of Patras

*Diploma Thesis*: Catalytic activation of carbon dioxide for methanol production

TEACHING EXPERIENCE

**08.2025 – Current**

Visiting Lecturer, Department of Chemical Engineering, University of Patras, within the “BA Program in Chemical Engineering and Technology”, delivered in China in collaboration with Liaoning University of Technology, Jinzhou, Liaoning, China, for the undergraduate courses:

Analytical Chemistry and Chemical Reaction Engineering II

**02.2025-06.2025**

Appointed Lecturer, Department of Chemical Engineering, University of Patras, for the undergraduate course: Analytic Chemistry Laboratory (2nd semester)

**02.2024 – 08.2024**

Visiting Lecturer, Department of Chemical Engineering, University of Patras, within the “BA Program in Chemical Engineering and Technology”, delivered in China in collaboration with Liaoning University of Technology, Jinzhou, Liaoning, China, for the undergraduate courses:

Organic Chemistry and English-Technical Terms for Chemical Engineers

**2016 – 2025**

Co-supervision of 15 diploma theses in the Laboratory of Heterogeneous Catalysis, Department of Chemical Engineering, University of Patras

**2016, 2018, 2019**

Teaching Assistant in the following undergraduate courses of the Department of Chemical Engineering, University of Patras: Chemical Engineering Process Laboratory II (8th semester), Polymers Laboratory (6th semester) and Organic Chemistry (2nd semester)

WORK EXPERIENCE

**03.2023 – Current**

1. Research on the mechanism and kinetics of the steam reforming of propane and butane over Ru/Al2O3 catalyst

2. Research on the purification of hydrogen-rich gas streams from CO₂ for power generation through an alkaline anion exchange membrane fuel cell

3. Translating a foreign-language academic book, “Photovoltaic Systems Engineering for Students and Professionals”, for use in Greek Universities

4. Verified Reviewer (source: Web of Science) of papers in 3 international scientific journals: Catalysts, Materials, Processes.

**06.2024 – 06.2025**

Chemical Engineer at Catalytic Pyrolysis Technologies IKE, focusing on the theoretical and experimental study, as well as the design of an industrial process for the separation of carbon produced during the pyrolysis of methane (natural gas) over solid catalysts

**06.2023 – 06.2024**

Postdoctoral Researcher at the research project: “Perovskitic electrocatalysts for integrated systems of microbial electrolysis cells and anion exchange membrane fuel cells performance” (project code: PERFORMANCE)

**02.2020 – 05.2020, 09.2021 – 09.2022**

As a PhD Candidate at the research project: “Development and Demonstration of a photocatalytic Process for removing Pathogens and Pharmaceuticals from wastewaters” (project code: 2De4P)

**09.2018 – 08.2021**

As a PhD Candidate at the research project: “Development and Demonstration of complete process for the production of electrical energy from fuel cells through intermediate production of H2 via LPG steam reforming” (project code: T1EDK-02442)

**07.2014**

Internship at the Patras Chemical Service/State General Laboratory, with duties involving the inspection of alcoholic beverages, wines and olive oils.

JOB-RELATED SKILLS

Experienced in many catalyst synthesis methods, including *in* *situ* combustion, wet impregnation, co-precipitation and sol-gel.

Experienced in many materials’ characterization techniques:

* Mass spectrometry (MS) and temperature-programmed techniques such as desorption, reduction, oxidation and surface reaction (TPD, TPR, TPO, TPSR)
* Fourier-transform infrared spectroscopy (FTIR)
* Methods for determining total and accessible metal surface area (Brunauer-Emmett-Teller analysis (BET), selective chemisorption of CO and H2)
* X-ray diffraction (XRD)
* Scanning electron microscopy (SEM) and transmission electron microscopy (TEM)

Experienced in catalytic performance and stability tests using gas chromatography.

**OTHER SKILLS**

* Analytical chemistry laboratory techniques
* Operation and use of laboratory and mechanical equipment

JOURNAL PUBLICATIONS

**Journal Publications 2024**

1. S. Kuppireddy, A.M. Varghese, H.A. Araj, P. Hart, **T. Ramantani**, G. Bampos, G.N. Karanikolos “A combined experimental and simulations assessment of CO2 capture and CO2/H2 separation performance of aminosilane-grafted MCM-41 and pore-expanded MCM-41”, Microporous and Mesoporous Materials, 377 (2024), 113220, <https://doi.org/10.1016/j.micromeso.2024.113220>.
2. **T. Ramantani**, G. Bampos, K. Kaponi, E. Kalamaris, D.I. Kondarides “Propane steam reforming over La0.8Sr0.2Ni1-*y*M*y*O3 (M = Cr, Mn, Fe, Co) perovskite-type oxides”, Applied Catalysis B: Environment and Energy, 358 (2024) 124391, <https://doi.org/10.1016/j.apcatb.2024.124391>.

**Journal Publications 2023**

1. G. Bampos, S. Karaiskos, **T. Ramantani**, G. Kyriakou “Steam reforming of butanol-ethanol mixture for H2 production over Ru catalysts”, Applied Catalysis A General, 664 (2023) 119347, <https://doi.org/10.1016/j.apcata.2023.119347>.
2. A. Kokka, **T. Ramantani**, I.V. Yentekakis, P. Panagiotopoulou “Optimization of MxOy (La2O3 or Gd2O3) content in Rh/MxOy-Al2O3 catalyst formulation for the propane steam reforming reaction”, Journal of Environmental Chemical Engineering, 11 (2023) 111059, <https://doi.org/10.1016/j.jece.2023.111059>.

**Journal Publications 2022**

1. **T. Ramantani**, V. Evangeliou, G. Kormentzas, D.I. Kondarides “Hydrogen Production by Steam Reforming of Propane and LPG over supported metal catalysts”, Applied Catalysis B: Environmental, 306 (2022) 121129, <https://doi.org/10.1016/j.apcatb.2022.121129>.
2. T. Kentri, A. Trimpalis, A. Misa, E. Kordouli, **T. Ramantani**, S. Boghosian “Rethinking the molecular structures of WVIOx sites dispersed on titania: distinct mono-oxo configurations at 430 °C and temperature-dependent transformations”, Dalton Transactions, 51 (2022) 7455-7475, <https://doi.org/10.1039/D2DT00595F>.
3. A. Kokka, **T. Ramantani**, I.V. Yentekakis, P. Panagiotopoulou “Catalytic performance and in situ DRIFTs studied of propane and simulated LPG steam reforming reactions on Rh nanoparticles dispersed on composite MxOy-Al2O3 (M: Ti, Y, Zr, La, Ce, Nd, Gd) supports”, Applied Catalysis B: Environmental, 316 (2022) 121668, <https://doi.org/10.1016/j.apcatb.2022.121668>.

**Journal Publications 2021**

1. A. Kokka, **T. Ramantani**, P. Panagiotopoulou “Effect of Operating Conditions on the Performance of Rh/TiO2 Catalyst for the Reaction of LPG Steam Reforming”, Catalysts, 11 (2021) 374, <https://doi.org/10.3390/catal11030374>.
2. **T. Ramantani**, G. Bampos, A. Vavatsikos, G. Vatskalis, D.I. Kondarides “Propane Steam Reforming over Catalysts derived from Noble Metal (Ru, Rh)-substituted LaNiO3 and La0.8Sr0.2NiO3 Perovskite Precursors”, Nanomaterials, 11 (2021) 1931, <https://doi.org/10.3390/nano11081931>.
3. G. Bampos, **T. Ramantani**, P. Panagiotopoulou, X.E. Verykios “Effect of Support on the Reactive Adsorption of CO from Low CO Concentration Streams on the Surface of Pd based Catalysts”, Industrial & Engineering Chemistry Research, 60 (2021) 18722-18738, <https://doi.org/10.1021/acs.iecr.1c02710>.

**Journal Publications 2020**

1. A. Kokka, **T. Ramantani**, A. Petala, P. Panagiotopoulou “Effect of the nature of the support, operating and pretreatment conditions on the catalytic performance of supported Ni catalysts for the selective methanation of CO”, Catalysis Today, 355 (2020) 832-843, <https://doi.org/10.1016/j.cattod.2019.04.015>.

CONFERENCE PUBLICATIONS

1. Catalyst’s preparation for methanol synthesis from CO2 hydrogenation, 14th Panhellenic Symposium of Catalysis, 2016, Patras.
2. Methanol production by CO2 hydrogenation over CuO/ZnO/MxOy catalysts, 5th Panhellenic Conference Green Chemistry and Sustainable Development, 2017, Patras.
3. Methanol production by hydrogenation of carbon dioxide over mixed oxides catalysts, 11th Panhellenic Scientific Conference on Chemical Engineering, 2017, Thessaloniki.
4. CO2 hydrogenation over supported Pd catalysts, 15th Panhellenic Symposium of Catalysis, 2018, Ioannina.
5. Catalytic performance of Cu/ZnO/MxOy catalysts (M=Al, Zr, Ga) for the CO2 hydrogenation, 15th Panhellenic Symposium of Catalysis, 2018, Ioannina.
6. Hydrogenation of carbon dioxide over supported Pd catalysts, 4th Workshop of Graduates and Postdocs in Chemical Engineering Sciences, 2018, Patras.
7. Steam reforming of propane over supported noble metal catalysts, 12th Panhellenic Scientific Conference on Chemical Engineering, 2019, Athens.
8. Effect of nature of the support, operating and pretreatment conditions on the catalytic behavior of supported nickel catalysts in the selective methanation of carbon monoxide, 12th Panhellenic Scientific Conference on Chemical Engineering, 2019, Athens.
9. Combined study of CO2 adsorption on a methanol-synthesis catalyst using TPD and FTIR spectroscopy, 12th Panhellenic Scientific Conference on Chemical Engineering, 2019, Athens.
10. Propane steam reforming over supported noble metal catalysts, 5th Workshop of Graduates and Postdocs in Chemical Engineering Sciences, 2019, Patras.
11. Hydrogen production by steam reforming of propane over supported noble metal catalysts, 11th International Conference on Environmental Catalysis, 2020, Manchester.
12. Propane steam reforming over Ni-based perovskite oxides, 1st Online Symposium of Young Scientists on «Mineral Resources-Environment-Chemical Engineering», 2021.
13. Effect of operating parameters on the activity and stability of a 0.5% Rh/TiO2 catalyst, in structured or unstructured forms, for the steam reforming of LPG, 1st Online Symposium of Young Scientists on «Mineral Resources-Environment-Chemical Engineering», 2021.
14. Effect of alkali promotion on the activity of Ru/TiO2 catalysts for the production of H2 via propane steam reforming, 12th International Conference on Hydrogen Production, ICH2P-2021, online conference, 2021.
15. A comparative study of propane and propane/butane steam reforming activity of Rh catalysts supported on composite MxOy/Al2O3 carriers, 5th EuChemS Conference on Green and Sustainable Chemistry, 5th EuGSC, online conference, 2021.
16. Noble metal-substituted La0.8Sr0.2NixM1-xO3 (M: Ru, Rh) perovskite catalysts for propane steam reforming”, World Sustainable Energy Days 2022, Wels.
17. Hydrogen production by steam reforming of LPG over supported catalysts Rh and Ru”, 13th Panhellenic Scientific Conference on Chemical Engineering, 2022, Patras.
18. LaSrNiXO3 (X: Zn, Mg, Fe, Co, Al, Cu, Ga) as heterogeneous persulfate activators for Losartan degradation in aqueous media, 11th European Conference on Pesticides and Related Organic Micropollutants in the Environment & 17th Symposium on Chemistry and Fate of Modern Pesticides, 2022, Ioannina.
19. Steam reforming of LPG over Ni-based perovskite oxide catalysts, 16th Panhellenic Symposium of Catalysis, 2022, Chania.
20. Study of the steam reforming of propane and LPG over Rh/MxOy-Al2O3 (M: Ti, Y, Zr, La, Ce, Nd, Gd) catalysts, 16th Panhellenic Symposium of Catalysis, 2022, Chania.
21. Hydrogen production via propane steam reforming reaction over alkali-promoted Ru/TiO2 catalysts, 3rd EURECA-PRO Conference on Responsible Consumption and Production, Chania, Greece, 2023.
22. Removal of CO2 from a hydrogen-rich gas stream using metal oxides and modified silica oxides, 14th Panhellenic Scientific Conference on Chemical Engineering, 2024, Thessaloniki.
23. La0.8Sr0.2Ni0.95M0.05O3 (M: Ag, Ir, Pd, Pt, Rh, Ru)/CB electrocatalysts for the O2 reduction reaction in alkaline medium, 14th Panhellenic Scientific Conference on Chemical Engineering, 2024, Thessaloniki.
24. La0.8Sr0.2Ni0.95M0.05O3 (M: Ag, Ir, Pd, Pt, Rh, Ru)/CB electrocatalysts for the O2 reduction reaction in alkaline medium, Electrochemistry 2024 Global Thinking Local Acting, 2024, Brauschweig, Germany.

**LANGUAGE SKILLS**

Mother tongue: Greek

Other language(s): English (C1), German (B1)

**COMPUTER SKILLS**

OriginPro |Microsoft Office |Fortran, Matlab

**HONORS AND AWARDS**

1. Limmat Foundation Scholarship award of excellence related to her academic performance (3rd) in her postgraduate studies (MSc) in the Department of Chemical Engineering, University of Patras
2. Best Poster award: Catalytic performance of Cu/ZnO/MxOy catalysts (M=Al, Zr, Ga) for the CO2 hydrogenation, 15th Panhellenic Symposium of Catalysis, 2018, Ioannina.
3. Best Poster award: Propane steam reforming over supported noble metal catalysts, 5th Workshop of Graduates and Postdocs in Chemical Engineering Sciences, 2019, Patras.

**SEMINARS**

Seminar on Health and Safety, May 2016 and May 2018, University of Patras.