Behgam Rahmanivahid *behgam.rahmanivahid@gmail.com*

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Personal Information:

- **Name:** Behgam
- **Surname:** Rahmanivahid
- **Gender:** Male

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Google Scholar:
https://scholar.google.com/citations?hl=en&user=kjBQFwMAAAAJ&view_op=list_works&sortby=pubdate

Scopus: https://www.scopus.com/authid/detail.uri?authorId=57192539986

Web of Science: https://www.webofscience.com/wos/author/record/HKV-4564-2023

Short CV:

- **24** ISI Papers
- **9** International Conferences Papers
- **6** national Conferences Papers
- **6** Patents
- **928** Citations (Google Scholar)
- h-Index **16** (Google Scholar)
- **6** Industrial Projects
- **11** years research encexperie
- **9** years teaching experience
- **1st** rank student (B.Sc.)
- **2nd** rank student (Ph.D.)
- The best PhD thesis (17th Festival of Iranian Premier Thesis)
- Member of Iran's National Elites Foundation
- Top University Lecturer - 2021 (Esfarayen University of Technology)
- Top University Researcher - 2022 (Esfarayen University of Technology)
- Member of North Khorasan Province Elite Consultative Assembly
- Member of the Scientific Committee of 2nd Modern Materials Conference (Yazd, Iran)
- Member of the Organizing Committee of 3rd Workshop and 4th MC Meeting of Lignoval – FP1306 Action (Torremolinos, Spain)
- Member of Scientific Committee of International Energy Research Center

Education:

Research Visitor, University of Cordoba, Cordoba, Spain **(2016-2017)**
Research Topic: Nanomaterials design for catalytic applications, particularly related to the synthesis of spinel and metal oxide nanostructured catalysts for a range of acid/redox catalysis processes including alkylations, acylations, selective oxidations, etc.
Supervisor: Prof. Rafael Luque

PhD, Chemical Engineering, Sahand University of Technology, Tabriz, Iran **(2013-2017)**.
Thesis: Utilization of Combustion and Plasma Technologies in the Synthesis of $MgAl_2O_4$ Supported Nanostructure Catalysts for Biodiesel Production.
GPA: 19.26 / 20
Supervisor: Prof Mohammad Haghighi

M.Sc., Chemical Engineering, Ferdowsi University of Mashhad, Mashhad, Iran **(2009-2012)**.
Thesis: Experimental studies in biodiesel production from waste edible oil using catalyst
GPA: 17.17 / 20
Supervisor: Prof. Naser Seghatoleslami

B.Sc., Chemical Engineering, University of Sistan and Baluchestan, Zahedan, Iran **(2003-2007)**.
Thesis: Effective Parameters on Design and Performance of Cement Rotary Kilns.
GPA: 15.52 / 20

Research Interests:

- Catalysts and Chemical Reactions
- Renewable Energy
- Environment
- Water Treatment
- Adsorption

Language Skills:

- Persian (Native)
- English (Professional Working Proficiency)

Computer and Simulation/Programming Skills:

- General Software: Microsoft Office (Word, Excel, PowerPoint,
- Professional Software: Aspen HYSYS, X'pert HighScore Plus (XRD), Design Expert, …

Associations:

- Iran's National Elites Foundation
- Iranian Chemical Engineering Society, Iran, 2015 to now.
- Iranian Chemical Society, Iran, 2015 to now.
- Research Assistant, Reactor and Catalysis Research Center, Department of Chemical Engineering, Sahand University of Technology, Iran, 2013 to 2017.
- Khorasan Science and Technology Park (KSTP), Mashhad, Iran, 2009 to 2011.
- Secretary-General of Student Association of Chemical Engineering University of Sistan & Baluchestan, Iran, 2005-2006
- Member of the Scientific Committee of 2nd Modern Materials Conference (Yazd, Iran, 2022)
- Member of the Organizing Committee of 3rd Workshop and 4th MC Meeting of Lignoval – FP1306 Action (Torremolinos, Spain, 2017)
- Member of Scientific Committee of International Energy Research Center

Awards and Honors:

- 1st rank student (B.Sc.) for 6 terms.
- 2nd rank student (Ph.D.)
- Member of Iran's National Elites Foundation
- The best thesis (PhD thesis) in Material and Chemical engineering, 17th Festival of Iranian Premier Thesis
- Top University Lecturer (Esfarayen University of Technology & North Khorasan Province)
- Top University Researcher (Esfarayen University of Technology)
- Member of North Khorasan Province Elite Consultative Assembly

Teaching Experience:

- Surface Phenomena, M.Sc. course, (2019 - until now).

- Heterogeneous Catalysis, M.Sc. course, (2019 - until now).
- Unit Operations 2, B.Sc. course, (2017- until now).
- Petrochemical Processes, B.Sc. course, (2017- until now).
- Physico-chemistry, B.Sc. course, (2017- until now).
- Heat Transfer 2, B.Sc. course, (2017- 2019).
- Heat Transfer 1, B.Sc. course, (2014).
- Chemical Engineering Software (HYSYS), B.Sc. course, (2014- until now).
- Mass Transfer, B.Sc. course, (2015-2017).
- Fluid Mechanics 2, B.Sc. course, (2015-2018).
- Thermodynamics 2, B.Sc. course, (2015-until now).
- Unit Operations Laboratory, B.Sc. course, (2015-2019).
- Process control Laboratory, (2015).

Research Projects:

1. Design and development of a fuel production system for use in fuel cells, Renewable Energy Organization of Iran (2012-2015).
2. Technical development of converting methanol to olefin catalyst at Bench scale & evaluate the catalytic performance in a fluidized bed reactor, Petrochemical Research and Technology Company (2013-2015)
3. The Influence of Loading Alkaline Earth Metal Oxides on the Activity of Alumina-Zirconia in the Conversion of Free Fatty Acids to Biodiesel, Islamic Azad University, Iran (2013-2016)
4. Preparation of magnetic nanoparticles by combustion method toward water pollutants absorption process, Esfarayen University of Technology, Iran (2019-2020)
5. Optimization and programming Electrical and mechanical systems (PM) of Esfarayen Industrial Complex (2020-2021)
6. Investigating the possibility of production of titanium oxide additive for the production of PVC pipes and counseling for fulfillment of technological requirements, Atlas Loole Esfarayen (2021-2022)

Publications (manuscripts):

1. K Al-Qaysi, **B Rahmanivahid**, A Badri, H Nayebzadeh, “Green fuel production using MO/$MgAl_{0.4}Fe_{1.6}O_4$ (MO=MgO, CaO, SrO, and BaO) as magnetic ceramic nanocatalysts”, Journal of Industrial and Engineering Chemistry, Corrected Proof (2023).

2. **B Rahmanivahid**, H Nayebzadeh, “Simple and Rapid Synthesis of Magnesium Spinel Catalysts for Production of Benzyl Toluene”, Journal of Petroleum Research Vol. 33, No.130, 19-21, (2023).

3. **B Rahmanivahid**, H Ajamein, T Zakizadeh, H Nayebzadeh, “Fabrication of super basic $Ba_xMg_{(1-x)}Fe_2O_4$ magnetic spinel nanocatalyst toward biodiesel production”, Materials Research Bulletin 165, 112321, (2023).

4. H Nayebzadeh, H Ajamein, T Zakizadeh, **B Rahmanivahid**, “Preparation of mixed spinel catalyst support ($Ca_xMg_{1-x}Al_2O_4$) reinforced by calcium oxide toward in the biodiesel production from vegetable oil”, International Journal of Green Energy, 1-12 (2023).

5. B Fattahi, M Haghighi, **B Rahmanivahid**, N Vardast, “Green Fuel Production from Sunflower Oil Using Nanocatalysts Based on Metal Oxides (SrO, La2O3, CaO, MgO, Li2O) Supported over Combustion-synthesized Mg-spinel”, Chemical Engineering Research and Design, 183, 411-423 (2022)

6. Hamed Nayebzadeh, Fereshteh Naderi, **Behgam Rahmanivahid**, “Assessment the synthesis conditions of separable magnetic spinel nanocatalyst for green fuel production: Optimization of transesterification reaction conditions using response surface methodology”, Fuel, 271, 117595 (2020).

7. Hamed Nayebzadeh, Fereshteh Naderi, **Behgam Rahmanivahid**, “Effect of Doping Al Cations into $MgFe_2O_4$ Magnetic Structure for Efficient Removals of Methyl Orange Dye from Water”, Journal of Inorganic and Organometallic Polymers and Materials, https://doi.org/10.1007/s10904-020-01816-y, (2020).

8. **Behgam Rahmanivahid,** Fereshteh Naderi, Hamed Nayebzadeh, “Removing Methyl Orange Molecules from Aqueous Medium by Magnetic Nanoparticles: Evaluating adsorption factors, isotherms, kinetics and thermodynamics”, Journal of Water and Environmental Nanotechnology, 5 (1), 1-16 (2020).

9. S Alaei, M Haghighi, **B Rahmanivahid**, R Shokrani, H Naghavi, “Conventional vs. hybrid methods for dispersion of MgO over magnetic Mg–Fe mixed oxides nanocatalyst in biofuel production from vegetable oil”, Renewable Energy, 154, 1188-1203 (2020).

10. Tohid Amani, Mohammad Haghighi, **Behgam Rahmanivahid**, “Microwave-Assisted Combustion Design of Magnetic Mg-Fe Spinel for MgO-Based Nanocatalyst Used in Biodiesel Production: Influence of Heating-Approach and Fuel Ratio”, Journal of Industrial and Engineering Chemistry, 80, 43-52 (2019).

11. S Yousefi, M Haghighi, **B Rahmanivahid**, “Role of glycine/nitrates ratio on structural and texture evolution of MgO-based nanocatalyst fabricated by hybrid microwave-impregnation method for biofuel production”, Energy Conversion and Management, 182, 251-261 (2019).

12. **B Rahmanivahid**, M Pinilla-de Dios, M Haghighi, R Luque, “Mechanochemical Synthesis of $CuO/MgAl_2O_4$ and $MgFe_2O_4$ Spinels for Vanillin Production from Isoeugenol and Vanillyl Alcohol”, Molecules, 24 (14), 2597 (2019).

13. **B Rahmanivahid**, M Haghighi, “Thermochemical Synthesis of Mg-Al Ceramic Spinel as Support for $MgO/MgAl_2O_4$ Nanocatalyst Toward Conversion of Vegetable Oil to Green Fuel”, Journal of Petroleum Research, 28 (102), 22-24 (2019).

14. S Yousefi, M Haghighi, **B Rahmanivahid**, “Facile and efficient microwave combustion fabrication of Mg-spinel as support for MgO nanocatalyst used in biodiesel production from sunflower oil: Fuel type approach”, Chemical Engineering Research and Design, 138, 506-518 (2018).

15. S Alaei, M Haghighi, J Toghiani, **B Rahmanivahid**, “Magnetic and reusable MgO/MgFe2O4 nanocatalyst for biodiesel production from sunflower oil: Influence of fuel ratio in combustion synthesis on catalytic properties and performance”, Industrial Crops and Products, 117, 322-332 (2018).

16. **B Rahmanivahid**, M Haghighi, J Toghiani, S Alaei, “Hybrid-coprecipitation vs. combustion synthesis of Mg-Al spinel based nanocatalyst for efficient biodiesel production”, Energy Conversion and Management, 160, 220-229 (2018).

17. **B Rahmanivahid**, N Saghatoleslami, H Nayebzadeh, J Toghiani, “Effect of alumina loading on the properties and activity of SO_4^{2-}/ZrO_2 for biodiesel production: Process optimization via response surface methodology”, Journal of the Taiwan Institute of Chemical Engineers, 83, 115-123 (2018).

18. **Behgam Rahmani vahid**, Mohammad Haghighi, Shervin Alaei, Javad Toghiani, **“**Reusability enhancement of combustion synthesized MgO/MgAl2O4 nanocatalyst in biodiesel production by glow discharge plasma treatment”, Energy Conversion and Management, 143 (2017) 23–32.

19. **Behgam Rahmani vahid**, Mohammad Haghighi, **“**Biodiesel production from sunflower oil over MgO/MgAl2O4 nanocatalyst: Effect of fuel type on catalyst nanostructure and performance”, Energy Conversion and Management, 134 (2017) 290–300.

20. Mohammad Hojjat, Hamed Nayebzadeh, Mahmoodreza Khadangi-Mahrood, **Behgam Rahmani-vahid**, **“**Optimization of process conditions for biodiesel production over CaO–Al2O3/ZrO2 catalyst using response surface methodology”, Chemical Papers, (2016) 1-10.

21. **Behgam Rahmani vahid**, Mohammad Haghighi, **“**Urea-nitrate combustion synthesis of MgO/MgAl2O4 nanocatalyst used in biodiesel production from sunflower oil: Influence of fuel ratio on catalytic properties and performance”, Energy Conversion and Management, 126 (2016) 362–372.

22. H. Nayebzadeh, N. Saghatoleslami, A. Maskooki And **B. R. Vahid, “**Preparation of Supported Nanosized Sulfated Zirconia by Strontia and Assessment of Its Activities in the Esterification of Oleic Acid”, Chemical and Biochemical Engineering Quarterly, 28 (3) 259–265 (2014).

23. H. Nayebzadeh, N. Saghatoleslami, A. Maskooki And **B. R.Vahid**, “Effect of Calcination Temperature on Catalytic Activity of Synthesis $SrO/S\text{-}ZrO_2$ by Solvent-free Method in

Esterification of Oleic Acid", Chemical and Biochemical Engineering Quarterly, 27 (3) 267–273 (2013).

24. **B. R.Vahid**, N. Saghatoleslami, H. Nayebzadeh and A. Maskooki, "Preparation of Nano-Size Al-Promoted Sulfated Zirconia and the Impact of Calcination Temperature on Its Catalytic Activity", Chemical and Biochemical Engineering Quarterly, 26 (2) 71–77 (2012).

Publications/Presentations (International Conferences):

1. Amir Hossein Farhadinia, Hamed Naibzadeh, Fatemeh Shabanipour Meybodi, **Behgam Rahmanivahid**, "Enhancement of Natural Adsorbents (Kaolin and Zeolite) with Chitosan and Investigation of Their Performance in Removing Methylene Blue Dye from Water", The 12th International Chemical Engineering Congress & Exhibition (IChEC 2023), Tehran, Iran, Autumn, 2023.

2. Fatemeh Shabanipour Meybodi, **Behgam Rahmanivahid**, Hamed Naibzadeh, Amir Hossein Farhadinia, "Characteristics Evaluation of Modified Kaolin in The Removal of Dye Pollutant from Aqueous Solution", The 12th International Chemical Engineering Congress & Exhibition (IChEC 2023), Tehran, Iran, Autumn, 2023.

3. Hamed Nayebzadeh, **Behgam Rahmanivahid,** "Influence of auxiliary fuel on the properties of alkaline mixed metal oxide catalyst fabricated by combustion method for biodiesel production", The 11th International Chemical Engineering Congress & Exhibition (IChEC 2020), Fouman, Iran, 15-17 April, 2020.

4. **Behgam Rahmanivahid**, Fereshteh Naderi, Hamed Nayebzadeh, "Application of Different Magnetic Nanoparticles in Water Treatment: Methyl Orange Adsorption Evaluation", The 11th International Chemical Engineering Congress & Exhibition (IChEC 2020), Fouman, Iran, 15-17 April, 2020.

5. **Behgam Rahmanivahid**, Mohammad Haghighi and Rafael Luque, "Combustion Synthesis of $MgAl_2O_4$ Spinel as a Nanocatalyst Support for biofuels production", European Cooperation in Science and Technology (FP1306 COST), Malaga, Spain, 27-28 March 2017.

6. **Behgam Rahmanivahid**, Mohammad Haghighi and Rafael Luque, "Synthesis Of $MgO/MgAl_2O_4$ Nanocatalyst By Combustion Method For Biodiesel Production", 6th International Conference on Nanomaterials (NanoUCO VI), Cordoba University, Spain, 25-26 February 2017.

7. H. Nayebzadeh, N. Saghatoleslami, **B. R. Vahid** and A. Maskooki, "Synthesis of sulfated zircona supported by strontia and its effect on the production of biodiesel from waste edible oil", 2nd International Conference on Emerging Trends in Energy Conservation, Tehran University, Iran, March 2013.

8. H. Nayebzadeh, **B. R. Vahid**, N. Saghatoleslami and A. Maskooki, "Preparation of novel nano-catalyst Sr/S-ZrO2 by solvent-free method and investigation the catalytic activity in esterification reaction", 4th International Conference on Nanostructures (ICNS4), Kish Island, Iran, 12-14 March 2012.

9. **B. R. Vahid**, H. Nayebzadeh, N. Saghatoleslami and A. Maskooki, “Comparison between the activity of nano-catalysts of Al-promoted and pure sulfated zirconia and optimization of condition in esterification of oleic acid”, 4th International Conference on Nanostructures (ICNS4), Kish Island, Iran, 12-14 March 2012.

Publications/Presentations (National Conferences):

1. Irandokht Jahanian, **Behgam Rahmanivahid**, Hamed Nayebzadeh, “Preparation of magnetic $BaO/MgFe_2O_4$ nanocatalyst by combustion-Impregnation method for use in the production of biodiesel green fuel”, National Conference on Chemical Engineering and Nanotechnology, Jandi-Shapur University of Technology, Dezful, Iran, 13-14 Jan 2021.

2. Morteza Mohagheghi, Hamed Nayebzadeh**, Behgam Rahmanivahid**, Tahereh Zakizadeh, “Synthesis of Mg-Al-Fe composite as catalyst support by combustion method toward biodiesel production”, National Conference on Chemical Engineering and Nanotechnology, Jandi-Shapur University of Technology, Dezful, Iran, 13-14 Jan 2021.

3. Arash Badri, Seyed Mohammad Mousavi-Sani, Hamed Nayebzadeh, **Behgam Rahmanivahid,** “Assessment the Effect of replacing the magnesium ions with calcium in $MgAl_2O_4$ spinel structure on its activity in the transesterification reaction for biodiesel production”, 17th Iranian National Congress of Chemical Engineering, Ferdowsi University of Mashhad, Iran, 09-11 Nov 2021.

4. Hamed Nayebzadeh, **Behgam Rahmanivahid**, Mohammad Haghighi, Naser Saghatoleslami, “Surface modification of Mayenite fabricated via microwave combustion method by KOH for biodiesel production”, 2nd National Conference on Gas and Petrochemical Processes (2nd GPP), Bojnourd University, Iran, 01-02 April 2019.

5. Hamed Nayebzadeh, **Behgam Rahmanivahid**, Naser Saghatoleslami, Mohammad Tabasizadeh, “Effect of Microwave irradiation on fabrication of catalyst and production of biodiesel and assessment the produced fuel properties on Exhaust gas emissions of diesel engine”, 2nd National Conference on Gas and Petrochemical Processes (2nd GPP), Bojnourd University, Iran, 01-02 April 2019.

6. **B. R. Vahid**, M. Haghighi, “Evaluation of Novel Technologies for Production of Biodiesel as Green Fuel”, 5th National Fuel and Combustion Conference, Tehran, Iran, Feb. 2014.

Patent:

1. Synthesis of Magnetic Magnesium-Ferrite Nanoceramic via Urea-Nitrate Combustion Method (Patent No. 92769, Date 2017.07.12)

2. Honeycomb Structured Magnesia Spinel Nanocatalyst (Patent No. 93131, Date 2017.08.12)

3. Plasma-Enhanced $MgO/MgAl_2O_4$ Nanocatalyst for Biodiesel Production (Patent No. 94078, Date 2017.11.01)

4. Employing of Glycine in Production of Mg-Spinel Ceramic Nanocatalyst Using Microwave Irradiation (Patent No. 95007, Date 2018.02.14)

5. Dispersion of Lithium Oxide over Ceramic Spinel via Combustion-Impregnation Method Used in Transesterification Process (Patent No. 98306, Date 2019.04.09)
6. Nano-structured fluidizable catalyst used in fluidized bed reactor for production of light olefins (Patent No. 98308, Date 2019.04.09)

Thesis Supervision:

B.Sc. Students

1. Mahsa Aramandeh (2021), "Non-Destructive Ultrasonic Testing", Esfarayen University of Technology, Esfarayen, Iran.
2. Abolfazl Darvishpour (2021), "Regulations on Personal protection and Safety in the Workplace", Esfarayen University of Technology, Esfarayen, Iran.
3. Abouzar Chashian (2020), "Using Adsorbents for Industrial and Non-industrial Water Treatment", Esfarayen University of Technology, Esfarayen, Iran.
4. Elham Khakpour (2020), "Using Modified Bentonite To Reduce OAT Production", Esfarayen University of Technology, Esfarayen, Iran.
5. Sajad Zahmatkesh (2020), "Investigation Of Various Methods Of Preparing Industrial Catalysts In Iran", Esfarayen University of Technology, Esfarayen, Iran.
6. Nastaran Okati (2020), "Principles of Cathodic Protection in Various Industries", Esfarayen University of Technology, Esfarayen, Iran.
7. Shima Salehi (2019), "Corrosion Control Methods in Petrochemical Industries", Esfarayen University of Technology, Esfarayen, Iran.
8. Sasan Soltani (2019), "Investigation of Flue Gas Emissions in Oil and Gas Industries", Esfarayen University of Technology, Esfarayen, Iran.
9. Ahmad Mahdipour (2019), "Paint Inspection in Oil, Gas and Petrochemical Industries", Esfarayen University of Technology, Esfarayen, Iran.
10. Zahra Lezgi (2019), "Removal of Heavy Metal Ions by Adsorbents", Esfarayen University of Technology, Esfarayen, Iran.
11. Simin Mohammadizadeh (2019), "Gas Separation Using Polymer Membranes", Esfarayen University of Technology, Esfarayen, Iran.
12. Leila Nouranifar (2019), "Catalytic Methods Of Biodiesel Production Using Waste Vegetable Oils", Esfarayen University of Technology, Esfarayen, Iran.

Thesis Co-Supervision:

B.Sc. Students

1. Shervin A'laei (2016), "Production of Biodiesel using Sonicated Mixed Oxide Catalysts", Reactor and Catalysis Research Center, Sahand University of Technology, Tabriz, Iran (adviser).
2. Javad Toghiani (2016), "Synthesis and Evaluation of Nanostructured Catalysts for Biodiesel Production", Reactor and Catalysis Research Center, Sahand University of Technology, Tabriz, Iran (adviser).

M.Sc. Students

1. Sina Yousefi (2017), "Effect of Various Fuels on Microwave Enhanced Combustion Synthesis of $MgO/MgAl_2O_4$ Nanocatalyst toward Biodiesel Production", Reactor and Catalysis Research Center, Sahand University of Technology, Tabriz, Iran (adviser).

2. Tohid Amani (2017), "Influence of Urea Fuel Ratio on Microwave Enhanced Combustion Synthesis of Magnetic $MgO/MgFe_2O_4$ Nanocatalyst Used in Biodiesel Production", Reactor and Catalysis Research Center, Sahand University of Technology, Tabriz, Iran (adviser).

Workshops:

1. **Safety, Protection and Management in the laboratory**, Organized by Ferdowsi University of Mashhad, Iran, 5-6 May 2010.

2. **Hysys Applications for Chemical Processes Simulation (Professional Course)**, Lectured by Dr. M. A. Fanaei Shykholeslami, Organized by College of Ferdowsi University of Mashhad, Iran, March & April 2011.

3. **Intellectual Property Rights and Patent**, Lectured by Dr. H. Akhavan, Organized by Iran Nanotechnology Initiative Council, Kish, Iran, 12-13 March 2012.

References:

- **Prof. Mohammad Haghighi (My Supervisor, Ph.D.)**
  Chemical Engineering Faculty, Sahand University of Technology, Tabriz, Iran
  Founding Director of Reactor & Catalysis Research Center
  Google Scholar: https://scholar.google.com/citations?user=zXkQPnkAAAAJ&hl=en
  Email: haghighi@sut.ac.ir, mhaghighip@yahoo.com
  Mobile: +98 914 408 6959

- **Prof. Rafael Luque (My Supervisor, Sabbatical)**
  Departamento de Quimica Organica, University of Cordoba, Cordoba, Spain
  Editor-in-chief Molecular Catalysis (Elsevier)
  Website: https://www.uco.es/~q62alsor/contact.html
  Google Scholar: https://scholar.google.com/citations?user=aAjK-qAAAAAJ&hl=en
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- **Prof. Ali Khorsand Zak (President of Esfarayen University of Technology, 2019-2022)**
  Mechanical Engineering Faculty, Esfarayen University of Technology, Esfarayen, Iran
  President of Esfarayen University of Technology

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