

Assoc. Prof. HARUN KOKU

Personal Information

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International Researcher IDs

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Publons / Web Of Science ResearcherID: ABH-4445-2020

ScopusID: 6505961443

Yoksis Researcher ID: 186297

Education Information

Doctorate, University of Delaware, Kimya Mühendisliği, United States Of America 2003 - 2011

Research Areas

Chemical Engineering and Technology, Engineering and Technology

Academic Titles / Tasks

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 2018
- Continues

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 2013
- 2018

Academic and Administrative Experience

Deputy Head of Department, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 2022 - Continues

Courses

Chemical Engineering Design II, Undergraduate, 2022 - 2023, 2021 - 2022, 2020 - 2021

Downstream Operations in Biotechnology, Undergraduate, 2022 - 2023, 2016 - 2017, 2014 - 2015

Introduction to Process Principles, Undergraduate, 2022 - 2023

Chemical Engineering Design I, Undergraduate, 2022 - 2023, 2021 - 2022, 2020 - 2021

Thermodynamics, Undergraduate, 2019 - 2020, 2018 - 2019, 2016 - 2017, 2015 - 2016, 2014 - 2015, 2013 - 2014, 2012
- 2013

COMPUTER APPLICATIONS IN CHEMICAL ENGINEERING, Undergraduate, 2019 - 2020, 2017 - 2018, 2015 - 2016

Heat and Mass Transfer Operations, Undergraduate, 2019 - 2020, 2017 - 2018, 2016 - 2017, 2014 - 2015

Thermodynamics II, Undergraduate, 2018 - 2019, 2015 - 2016, 2014 - 2015, 2013 - 2014, 2012 - 2013
Mathematical Modeling in Chemical Engineering, Undergraduate, 2018 - 2019, 2017 - 2018

Advising Theses

Bayramoğlu T. H., Koku H., Investigation of photofermentative poly-hydroxybutyrate (PHB) and hydrogen production via rhodobacter capsulatus, Postgraduate, E.HOŞAFCI(Student), 2023
Koku H., Bayramoğlu T. H., Product analysis for photobiological production of hydrogen, Postgraduate, E.TARLAN(Student), 2022
Çalık P., KOKU H., Analysis and characterization of the Pichia pastoris secretome for pharmaceutical protein production, Postgraduate, H.PINAR(Student), 2019
KOKU H., High resolution imaging and image analysis in porous media, Postgraduate, Ö.Hande(Student), 2019
KOKU H., Photofermentative hydrogen production from molasses in tubular photobioreactor with pH control, Postgraduate, F.Betül(Student), 2019
KOKU H., Scale-up studies for photobiological production of hydrogen, Postgraduate, D.Savaşürk(Student), 2019
KOKU H., YÜCEL A. M., Biohydrogen production by immobilized purple nonsulfur bacteria, Doctorate, E.SAĞIR(Student), 2018
KOKU H., Geometry-based modeling of dispersion in core-shell particle media, Postgraduate, E.HATİPOĞLU(Student), 2017
KOKU H., YÜCEL A. M., Microarray analysis of the effects of light intensity on hydrogen production metabolism of Rhodobacter capsulatus, Doctorate, M.GÜRGAN(Student), 2017
KOKU H., Understanding carbon metabolism in hydrogen production by PNS bacteria, Postgraduate, E.MELİS(Student), 2016
KOKU H., Design and analysis of tubular photobioreactors for biohydrogen production, Postgraduate, E.KAYAHAN(Student), 2015

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **A preliminary techno-economic analysis of photofermentative hydrogen production**
Genç Ş., KOKU H.
International Journal of Hydrogen Energy, vol.52, pp.212-222, 2024 (SCI-Expanded)
- II. **Pilot-scale outdoor photofermentative hydrogen production from molasses using pH control**
Ofraz F. B., KOKU H.
International Journal of Hydrogen Energy, vol.46, no.57, pp.29160-29172, 2021 (SCI-Expanded)
- III. **Transcriptome analysis of the effects of light and dark cycle on hydrogen production metabolism of Rhodobacter capsulatus DSM1710**
Gürgan M., KOKU H., Eroglu I., Yücel M.
International Journal of Hydrogen Energy, vol.45, no.60, pp.34707-34719, 2020 (SCI-Expanded)
- IV. **Addressing challenges in the ultrafiltration of biomolecules from complex aqueous environments**
Büküşoğlu E., Koku H., Çulfaz-Emecen P. Z.
Current Opinion in Colloid and Interface Science, vol.46, pp.52-64, 2020 (SCI-Expanded)
- V. **Microarray analysis of high light intensity stress on hydrogen production metabolism of Rhodobacter capsulatus**
Gurgan M., KOKU H., EROĞLU İ., Yucel M.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.45, no.5, pp.3516-3523, 2020 (SCI-Expanded)
- VI. **Long-term stable hydrogen production from acetate using immobilized Rhodobacter capsulatus in a panel photobioreactor**
Elkahlout K., Sagir E., Alipour S., KOKU H., GÜNDÜZ U., Eroglu I., Yucel M.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.44, no.34, pp.18801-18810, 2019 (SCI-Expanded)

- VII. **Photofermentative hydrogen production from molasses: Scale-up and outdoor operation at low carbon-to-nitrogen ratio**
Savasturk D., Kayahan E., KOKU H.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.43, no.26, pp.11676-11687, 2018 (SCI-Expanded)
- VIII. **Scale-up studies for stable, long-term indoor and outdoor production of hydrogen by immobilized Rhodobacter capsulatus**
Sagir E., ALIPOUR S., ELKAHLOUT K., KOKU H., GÜNDÜZ U., Eroglu I., YUCEL M.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.42, no.36, pp.22743-22755, 2017 (SCI-Expanded)
- IX. **Dynamic modeling of temperature change in outdoor operated tubular photobioreactors**
ANDROGA D. D., Uyar B., KOKU H., Eroglu I.
BIOPROCESS AND BIOSYSTEMS ENGINEERING, vol.40, no.7, pp.1017-1031, 2017 (SCI-Expanded)
- X. **A compact tubular photobioreactor for outdoor hydrogen production from molasses**
KAYAHAN E., Eroglu I., KOKU H.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.42, no.4, pp.2575-2582, 2017 (SCI-Expanded)
- XI. **Implementation and analysis of temperature control strategies for outdoor photobiological hydrogen production**
ANDROGA D. D., UYAR B., KOKU H., EROĞLU İ.
BIOPROCESS AND BIOSYSTEMS ENGINEERING, vol.39, no.12, pp.1913-1921, 2016 (SCI-Expanded)
- XII. **Design of an outdoor stacked - tubular reactor for biological hydrogen production**
KAYAHAN E., Eroglu I., KOKU H.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.41, no.42, pp.19357-19366, 2016 (SCI-Expanded)
- XIII. **Optimization of temperature and light intensity for improved photofermentative hydrogen production using Rhodobacter capsulatus DSM 1710**
ANDROGA D. D., SEVİNÇ P., KOKU H., Yücel M., GÜNDÜZ U., Eroglu I.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.39, no.6, pp.2472-2480, 2014 (SCI-Expanded)
- XIV. **Modeling of dispersion in a polymeric chromatographic monolith**
Koku H., Maier R. S., Schure M. R., Lenhoff A. M.
JOURNAL OF CHROMATOGRAPHY A, vol.1237, pp.55-63, 2012 (SCI-Expanded)
- XV. **Modeling of flow in a polymeric chromatographic monolith**
Koku H., Maier R. S., Czymbek K. J., Schure M. R., Lenhoff A. M.
JOURNAL OF CHROMATOGRAPHY A, vol.1218, no.22, pp.3466-3475, 2011 (SCI-Expanded)
- XVI. **Protein adsorption and transport in dextran-modified ion-exchange media. I: Adsorption**
Bowes B. D., Koku H., Czymbek K. J., Lenhoff A. M.
JOURNAL OF CHROMATOGRAPHY A, vol.1216, no.45, pp.7774-7784, 2009 (SCI-Expanded)
- XVII. **Relation of structure to performance characteristics of monolithic and perfusive stationary phases**
Trilisky E. I., Koku H., Czymbek K. J., Lenhoff A. M.
JOURNAL OF CHROMATOGRAPHY A, vol.1216, no.36, pp.6365-6376, 2009 (SCI-Expanded)
- XVIII. **Kinetics of biological hydrogen production by the photosynthetic bacterium Rhodobacter sphaeroides O.U. 001**
KOKU H., Eroglu I., GÜNDÜZ U., Yücel M., Türker L.
International Journal of Hydrogen Energy, vol.28, no.4, pp.381-388, 2003 (SCI-Expanded)

Articles Published in Other Journals

- I. **Analysis of the Carbon Metabolism of Rhodospirillum rubrum for Biohydrogen Production**
DOĞAN E. M., KOKU H.
Biotech Studies, vol.31, no.1, pp.1-8, 2022 (Scopus)
- II. **Modelling of Diffusion in Random Packings of Core-Shell Particles**
HATİPOĞLU E., KOKU H.
Hacettepe Journal of Biology and Chemistry, 2017 (Peer-Reviewed Journal)

Refereed Congress / Symposium Publications in Proceedings

- I. **Uncoupling of the effect of pH and salinity on photofermentative hydrogen and poly-hydroxybutyric acid production by Rhodobacter capsulatus YO3**
HOŞAFCI E., VOLKAN A. E., ATEŞ C., KOKU H., ERGUDER T. H.
1st International Conference on Novel Photorefineries for Resource Recovery-PHOTOREFINERIES 2024, Valladolid, Spain, 9 - 11 September 2024, pp.182-184
- II. **Microfiber flock materials for immobilization of purple bacteria**
SAĞIR E., Ezgi Melis D., KOKU H., BAT E., MAVIŞ B., ERGUDER T. H., SAN M., Kibar A., YILDIRIM M. U., ÖZBUDAK C. Ş., et al.
1st International Conference on Novel Photorefineries for Resource Recovery-PHOTOREFINERIES 2024, Valladolid, Spain, 9 - 11 September 2024, pp.310-312
- III. **Biohydrogen Production in a Biofilm Photobioreactor with Functionalized Microfiber Flock**
SAĞIR E., Ezgi Melis D., KOKU H., BAT E., MAVIŞ B., ERGUDER T. H., KOCAMANOĞLU B., Çam Ş., YILDIRIM M. U., ÖZBUDAK C. Ş.
8th International Hydrogen Technologies Congress, Diyarbakır, Turkey, 12 - 15 May 2024
- IV. **Operation modes and hup mutatin determine H2 and PHB production in Rhodobacter capsulatus**
HOŞAFCI E., Tarlan E., ERGUDER T. H., KOKU H.
8th International Hydrogen Technologies Congress, Diyarbakır, Turkey, 12 - 15 May 2024
- V. **Comparison of wild type and uptake hydrogenase deficient mutant strains of Rhodobacter Capsulatus for hydrogen and PHB production**
Tarlan E., Hoşafcı E., ERGUDER T. H., KOKU H.
WHEC 2022, 23rd World Hydrogen Energy Conference, İstanbul, Turkey, 26 June 2022
- VI. **COMPARISON OF WILD TYPE AND UPTAKE HYDROGENASE DEFICIENT MUTANT STRAINS OF RHODOBACTER CAPSULATUS FOR HYDROGEN AND PHB PRODUCTION**
Tarlan E., Hoşafcı E., Bayramoğlu T. H., Koku H.
23rd World Hydrogen Energy Conference, İstanbul, Turkey, 26 - 30 June 2022, pp.83
- VII. **A PRELIMINARY TECHNO-ECONOMIC ANALYSIS OF PHOTOBIOLOGICAL HYDROGEN PRODUCTION**
GENÇ Ş., KOKU H.
WHEC2022 - 23rd World Hydrogen Energy Conference, İstanbul, Turkey, 26 June 2022
- VIII. **Energy, Hydrogen and Biohydrogen: Perspectives, Examples and Outlook**
Koku H.
4 International Symposium on Advanced Materials and Nanotechnology 2020, Shah-Alam, Malaysia, 1 - 03 December 2020, pp.71-73
- IX. **Comparison of PEM Fuel Cell vs. Lithium-Sulfur Battery Systems for Unmanned Aerial Vehicles**
Koku H., Eroğlu I., Pala D. E., Erişen N.
5th International Hydrogen Technologies Congress , Niğde, Turkey, 26 May - 28 October 2021, pp.85-87
- X. **Biological Hydrogen Production Studies in METU**
Koku H.
12th International Conference on Hydrogen Production , Messina, Italy, 19 September - 23 October 2021, pp.143
- XI. **Photofermentative Hydrogen Production by Agar Immobilized Co-Cultures of Purple Non-Sulfur Bacteria**
Koku H., Yücel A. M., Eroğlu I., Baysal G.
5th International Hydrogen Technologies Congress, Niğde, Turkey, 26 May - 28 October 2021, pp.58-60
- XII. **Fotofermentatif hidrojen üretiminde pH değerinin etkisi**
OFLAZ F. B., KOKU H.
2nd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2019), Ankara, Turkey, 28 June 2019
- XIII. **Pilot-Ölçekli Açık hava Fotofermentatif Hidrojen Üretiminde pH Kontrolünün Uygulanması**
OFLAZ F. B., KOKU H.
13. ULUSAL KİMYA MÜHENDİSLİĞİ KONGRESİ, Van, Turkey, 3 - 06 September 2018

- XIV. **Microarray analysis of high light intensity stress on hydrogen production metabolism of *Rhodobacter capsulatus***
GÜRGAN ESER M., KOKU H., EROĞLU İ., YÜCEL A. M.
7th Global Conference on Global Warming, İzmir, Turkey, 24 June - 28 July 2018
- XV. **Hydrogen production by agar-immobilized *R. capsulatus* in panel photobioreactor**
ELKAHLOUT K., SAĞIR E., ALIPOUR S., KOKU H., GÜNDÜZ U., EROĞLU İ., Yücel A. M.
3rd International Hydrogen Technologies Congress (IHTEC-2018), Antalya, Turkey, 15 - 18 March 2018, pp.29
- XVI. **Scale-up Studies for Photofermentative Hydrogen Production**
SAVAŞTÜRK D., KOKU H.
Hypothesis XII: Hydrogen Power - Theoretical and Engineering Solutions - International Symposium, 28 - 30 June 2017
- XVII. **Hydrogen productivities of *Rhodobacter capsulatus* wild type and hup- mutant under low and high light intensity**
GÜRGAN ESER M., KOKU H., EROĞLU İ., YÜCEL A. M.
II. International Conference on Sustainable Development (ICSD2016), Skopje, Macedonia, 19 October 2016
- XVIII. **Gözenekli Ortamda Kütle Dağılımının Görüntü Tabanlı Modellenmesi**
Hatipoğlu E., KOKU H.
16. Kromatografi Kongresi, Van, Turkey, 31 August 2016
- XIX. **Basit Şekerlerle Fotofermentatif Hidrojen Üretiminin İncelenmesi**
SAVAŞTÜRK D., KOKU H.
12. Ulusal Kimya Mühendisliği Kongresi, Turkey, 23 - 26 August 2016
- XX. **Utilization of Molasses in a Pilot Scale Photobioreactor in Outdoor Conditions**
KAYAHAN E., EROĞLU İ., KOKU H.
21st World Hydrogen Energy Conference, 13 - 16 June 2016
- XXI. **Understanding Carbon Metabolism in Hydrogen Production by PNS Bacteria**
DOĞAN E. M., KOKU H.
21st World Hydrogen Energy Conference, 13 - 16 June 2016
- XXII. **Biyolojik Hidrojen Üretimi için Borsal Fotobiyoreaktör Tasarımı ve Analizi**
KAYAHAN E., EROĞLU İ., KOKU H.
UHTEK2015 - Ulusal Hidrojen Teknolojileri Kongresi, İstanbul, Turkey, 20 - 23 December 2015
- XXIII. **Design of an Outdoor Stacked Tubular Reactor for Biological Hydrogen Production**
KAYAHAN E., EROĞLU İ., KOKU H.
Hypothesis XI, 6 - 09 September 2015
- XXIV. **Implementation and analysis of temperature control strategies for outdoor photobiological hydrogen production**
Deo Androga D., KOKU H., UYAR B., Eroglu I.
20th World Hydrogen Energy Conference, WHEC 2014, Gwangju, South Korea, 15 - 20 June 2014, vol.2, pp.1283-1290
- XXV. **Applications of Image Processing for the Analysis and Characterization of Porous Media**
KOKU H.
International Porous and Powder Materials Symposium, 3 - 06 September 2013
- XXVI. **Aspects of the metabolism of hydrogen production by *Rhodobacter sphaeroides***
KOKU H., Erolu I., GÜNDÜZ U., Yücel M., Türker L.
Biohydrogen 2002 (BIO-H2), Ede, Netherlands, 21 April 2002, vol.27, pp.1315-1329

Supported Projects

Bayramoğlu T. H., Koku H., TÜBİTAK - AB COST Project, COST CA 21146 - Fundamentals and applications of purple bacteria biotechnology for resource recovery from waste (PURPLEGAIN), 2022 - 2026

YÜCEL A. M., KOKU H., Project Supported by Higher Education Institutions, Sıcak ve Soğuk Stresi Altındaki *Rhodobacter*

capsulatus bakterisinin Hidrojen Üretim Mekanizmasında Rol Alan Genlerinin İfadesinin QPCR Yöntemi İle İncelenmesi, 2013 - 2024

Toffoli H., Yerli S. K., Şener C., Manguoğlu M., Sezer Uzol N., Koku H., Karagöz P., H2020 Project, EuroCC, 2020 - 2022

Ortakaya B., Temizsoylu O., Toffoli H., Yerli S. K., Kaya K., Baran Ö. U., Karaca M., Karagöz P., Koku H., Manguoğlu M., et al., H2020 Project, EuroCC@Türkiye, 2020 - 2022

KOKU H., TÜBİTAK Project, Kromatografik Malzemelerin Akış Profili ve Kütle Dağılım Davranışının Geometri-Temelli Modellenmesi, 2018 - 2021

KOKU H., Kırılı P., Project Supported by Higher Education Institutions, Pichia pastoris sekretomunun saflaştırmaya yönelik incelenmesi, 2018 - 2020

KOKU H., YALÇIN Ö. H., Project Supported by Higher Education Institutions, Gözenekli Malzemelerin Yüksek Çözünürlüklü Yöntemlerle Görüntülenmesi, 2016 - 2017

KOKU H., Yağcı M., TANRISEVEN G., Project Supported by Higher Education Institutions, Gözenekli Malzemelerde Akış ve Kütle Taşınımının Modellenmesi, 2013 - 2015

KOKU H., Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2014

Metrics

Publication: 46
Citation (WoS): 1092
Citation (Scopus): 1199
H-Index (WoS): 14
H-Index (Scopus): 15

Congress and Symposium Activities

Working Group, Van, Turkey, 2018