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Publons / Web Of Science ResearcherID: AAZ-9974-2020

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Education Information

Doctorate, Ecole Polytechnique Fédérale de Lausanne, EPFL (The Federal Institute of Technology, Lausanne), Chemistry and Chemical Engineering , Switzerland 2015 - 2019

Postgraduate, Middle East Technical University, Faculty Of Engineering, Department Of Chemical Engineering, Turkey 2011 - 2013

Undergraduate, Middle East Technical University, Faculty Of Engineering, Department Of Chemical Engineering, Turkey 2006 - 2010

Dissertations

Doctorate, Copper Bipyridyl Redox Mediators for High Performance Dye-Sensitized Solar Cells, Ecole Polytechnique Federale De Lausanne, Chemistry and Chemical Engineering, 2019

Postgraduate, Modeling and control of a PEM fuel cell system, Middle East Technical University, Faculty Of Engineering, Department Of Chemical Engineering, 2013

Research Areas

Engineering and Technology

Academic Titles / Tasks

Assistant Professor, Ankara University, Mühendislik Fakültesi, Enerji Mühendisliği Bölümü, 2022 - Continues

Courses

Introduction to Energy Engineering, Undergraduate, 2022 - 2023

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Revealing the Mechanism of Doping of spiro-MeOTAD via Zn Complexation in the Absence of Oxygen and Light**
Saygili Y., Kim H., Yang B., Suo J., Munoz-Garcia A. B., Pavone M., Hagfeldt A.
ACS ENERGY LETTERS, vol.5, no.4, pp.1271-1277, 2020 (SCI-Expanded)
- II. **Liquid State and Zombie Dye Sensitized Solar Cells with Copper Bipyridine Complexes Functionalized with Alkoxy Groups**
Saygili Y., Stojanovic M., Kim H., Teuscher J., Scopelliti R., Freitag M., Zakeeruddin S. M., Moser J., Graetzel M., Hagfeldt A.
JOURNAL OF PHYSICAL CHEMISTRY C, vol.124, no.13, pp.7071-7081, 2020 (SCI-Expanded)
- III. **Molecular Engineering of Simple Metal-Free Organic Dyes Derived from Triphenylamine for Dye-Sensitized Solar Cell Applications**
Ferdowsi P., Saygili Y., Jazaeri F., Edvinsson T., Mokhtari J., Zakeeruddin S. M., Liu Y., Graetzel M., Hagfeldt A.
CHEMSUSCHEM, vol.13, no.1, pp.212-220, 2020 (SCI-Expanded)
- IV. **Metal Coordination Complexes as Redox Mediators in Regenerative Dye-Sensitized Solar Cells**
Saygili Y., Stojanovic M., Flores-Diaz N., Zakeeruddin S. M., Vlachopoulos N., Graetzel M., Hagfeldt A.
INORGANICS, vol.7, no.3, 2019 (SCI-Expanded)
- V. **Electron-Affinity-Triggered Variations on the Optical and Electrical Properties of Dye Molecules Enabling Highly Efficient Dye-Sensitized Solar Cells**
Liu Y., Cao Y., Zhang W., Stojanovic M., Dar M. I., Pechy P., Saygili Y., Hagfeldt A., Zakeeruddin S. M., Graetzel M.
ANGEWANDTE CHEMIE-INTERNATIONAL EDITION, vol.57, no.43, pp.14125-14128, 2018 (SCI-Expanded)
- VI. **Effect of Coordination Sphere Geometry of Copper Redox Mediators on Regeneration and Recombination Behavior in Dye-Sensitized Solar Cell Applications**
Saygili Y., Stojanovic M., Michaels H., Tjepelt J., Teuscher J., Massaro A., Pavone M., Giordano F., Zakeeruddin S. M., Boschloo G., et al.
ACS APPLIED ENERGY MATERIALS, vol.1, no.9, pp.4950-4962, 2018 (SCI-Expanded)
- VII. **Comprehensive control of voltage loss enables 11.7% efficient solid-state dye-sensitized solar cells**
Zhang W., Wu Y., Bahng H. W., Cao Y., Yi C., Saygili Y., Luo J., Liu Y., Kavan L., Moser J., et al.
ENERGY & ENVIRONMENTAL SCIENCE, vol.11, no.7, pp.1779-1787, 2018 (SCI-Expanded)
- VIII. **Planar Perovskite Solar Cells with High Open-Circuit Voltage Containing a Supramolecular Iron Complex as Hole Transport Material Dopant**
Saygili Y., Turren-Cruz S., Olthof S., Saes B. W. H., Pehlivan I. B., Saliba M., Meerholz K., Edvinsson T., Zakeeruddin S. M., Graetzel M., et al.
CHEMPHYSICHEM, vol.19, no.11, pp.1363-1370, 2018 (SCI-Expanded)
- IX. **Boosting the Efficiency of Perovskite Solar Cells with CsBr-Modified Mesoporous TiO₂ Beads as Electron-Selective Contact**
Seo J., Uchida R., Kim H., Saygili Y., Luo J., Moore C., Kerrod J., Wagstaff A., Eklund M., McIntyre R., et al.
ADVANCED FUNCTIONAL MATERIALS, vol.28, no.15, 2018 (SCI-Expanded)
- X. **Alternative bases to 4-tert-butylpyridine for dye-sensitized solar cells employing copper redox mediator**
Ferdowsi P., Saygili Y., Zakeeruddin S. M., Mokhtari J., Gratzel M., Hagfeldt A., Kavan L.
ELECTROCHIMICA ACTA, vol.265, pp.194-201, 2018 (SCI-Expanded)
- XI. **Molecular Design of Efficient Organic D-A- π -A Dye Featuring Triphenylamine as Donor Fragment for Application in Dye-Sensitized Solar Cells**
Ferdowsi P., Saygili Y., Zhang W., Edvinsson T., Kavan L., Mokhtari J., Zakeeruddin S. M., Gratzel M., Hagfeldt A.
CHEMSUSCHEM, vol.11, no.2, pp.494-502, 2018 (SCI-Expanded)
- XII. **Novel highly active Pt/graphene catalyst for cathodes of Cu(II/I)-mediated dye-sensitized solar cells**
Kavan L., Krysova H., Janda P., Tarabkova H., Saygili Y., Freitag M., Zakeeruddin S. M., Hagfeldt A., Gratzel M.
ELECTROCHIMICA ACTA, vol.251, pp.167-175, 2017 (SCI-Expanded)
- XIII. **11% efficiency solid-state dye-sensitized solar cells with copper(II/I) hole transport materials**
Cao Y., Saygili Y., Ummadisingu A., Teuscher J., Luo J., Pellet N., Giordano F., Zakeeruddin S. M., Moser J., Freitag M.,

et al.

NATURE COMMUNICATIONS, vol.8, 2017 (SCI-Expanded)

- XIV. **Dye-sensitized solar cells for efficient power generation under ambient lighting**
Freitag M., Teuscher J., Saygili Y., Zhang X., Giordano F., Liska P., Hua J., Zakeeruddin S. M., Moser J., Gratzel M., et al.
NATURE PHOTONICS, vol.11, no.6, pp.372-379, 2017 (SCI-Expanded)
- XV. **Electrochemical Properties of Cu(II/I)-Based Redox Mediators for Dye-Sensitized Solar Cells**
Kavan L., Saygili Y., Freitag M., Zakeeruddin S. M., Hagfeldt A., Gratzel M.
ELECTROCHIMICA ACTA, vol.227, pp.194-202, 2017 (SCI-Expanded)
- XVI. **A small electron donor in cobalt complex electrolyte significantly improves efficiency in dye-sensitized solar cells**
Hao Y., Yang W., Zhang L., Jiang R., Mijangos E., Saygili Y., Hammarstrom L., Hagfeldt A., Boschloo G.
NATURE COMMUNICATIONS, vol.7, 2016 (SCI-Expanded)
- XVII. **Novel Blue Organic Dye for Dye-Sensitized Solar Cells Achieving High Efficiency in Cobalt-Based Electrolytes and by Co-Sensitization**
Hao Y., Saygili Y., Cong J., Eriksson A., Yang W., Zhang J., Polanski E., Nonomura K., Zakeeruddin S. M., Gratzel M., et al.
ACS APPLIED MATERIALS & INTERFACES, vol.8, no.48, pp.32797-32804, 2016 (SCI-Expanded)
- XVIII. **Copper Bipyridyl Redox Mediators for Dye-Sensitized Solar Cells with High Photovoltage**
Saygili Y., Soderberg M., Pellet N., Giordano F., Cao Y., Munoz-Garcia A. B., Zakeeruddin S. M., Vlachopoulos N., Pavone M., Boschloo G., et al.
JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, vol.138, no.45, pp.15087-15096, 2016 (SCI-Expanded)
- XIX. **Development and modeling for process control purposes in PEMs**
Saygili Y., Kincal S., Eroglu I.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.40, no.24, pp.7886-7894, 2015 (SCI-Expanded)
- XX. **Model based temperature controller development for water cooled PEM fuel cell systems**
Saygili Y., Eroglu I., Kincal S.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.40, no.1, pp.615-622, 2015 (SCI-Expanded)

Supported Projects

Saygili Y., Üner N. B., TUBITAK Project, Azot Katkılı Nanoelmas: Dengesiz Plazmada Sentezi Ve Optoelektronik Uygulamalarda Kullanımı, 2022 - 2024

Saygili Y., TUBITAK Project, Development of low-bandgap and high-bandgap perovskite materials for 2T monolithic tandem solar devices, 2021 - 2023

Hagfeldt A., Universities of Other Countries Supported Project, Fundamental studies of dye-sensitized and perovskite solar cells, 2017 - 2018

Kincal S., TUBITAK Project, Stokiyometrik Olmayan Oksitler Kullanılarak Hidrojen Üretim Süreci Ve Teknolojilerinin Geliştirilmesi, 2014 - 2017

Saygili Y., Hagfeldt A., Universities of Other Countries Supported Project, Fundamental studies of mesoscopic devices for solar energy conversion, 2014 - 2016

Eroglu I., TUBITAK Project, Pem Yakıt Pilleri İçin Kompozit Membranlar Ve Elektrokatalizörlerin Geliştirilmesi Ve Uzun Dönem Performanslarının Belirlenmesi, 2009 - 2012

Activities in Scientific Journals

ENERGIES, Special Issue Editor, 2021 - Continues

Congress and Symposium Activities

Dyename DSSC Conference, Attendee, Uppsala, Sweden, 2017

International Conference Hybrid and Organic Photovoltaics (HOPV), Attendee, Lausanne, Switzerland, 2017

International Conference Asia-Pacific Hybrid and Organic Photovoltaics (AP-HOPV), Attendee, Yokohama, Japan, 2017

International Workshop on Detection of Pathogenic Microorganisms: Probes, Platforms and Detectors, Attendee, Muğla, Turkey, 2014

International NanobioTechnology Symposium, Audience, Muğla, Turkey, 2014

International Conference on Clean Energy (ICCE), Attendee, İstanbul, Turkey, 2014