

Prof. AYNUR ERAY

Personal Information

Office Phone: [+90 312 297 7245](tel:+903122977245)

Fax Phone: [+90 312 299 2037](tel:+903122992037)

Email: feray@hacettepe.edu.tr

Web: <https://avesis.hacettepe.edu.tr/feray>

International Researcher IDs

ORCID: 0000-0001-5498-3709

Publons / Web Of Science ResearcherID: AAW-2045-2021

ScopusID: 56630780800

Yoksis Researcher ID: 5399

Education Information

Doctorate, Hacettepe University, Fen Bilimleri Enstitüsü, Fizik Mühendisliği, Turkey 1982 - 1988

Postgraduate, Hacettepe University, Fen Bilimleri Enstitüsü, Fizik Mühendisliği, Turkey 1981 - 1982

Undergraduate, Hacettepe University, Mühendislik Fakültesi, Fizik Mühendisliği, Turkey 1976 - 1981

Research Areas

Electrical and Electronics Engineering, Energy, Renewable energy, Physics, Interdisciplinary Physics and Related Science and Technology Areas, Intensive Article 2: Electronic Structure, Electric, Magnetic and Optical Properties, Natural Sciences, Engineering and Technology

Academic Titles / Tasks

Professor, Hacettepe University, Mühendislik Fakültesi, Fizik Mühendisliği Bölümü, 2003 - Continues

Academic and Administrative Experience

Hacettepe Üniversitesi, Yeni Ve Temiz Enerji Araştırma Ve Uygulama Merkezi, 2011 - Continues

Hacettepe Üniversitesi, Fen Bilimleri Enstitüsü, 2011 - 2017

Hacettepe Üniversitesi, Mühendislik Fakültesi, Fizik Mühendisliği Bölümü, 2009 - 2012

Hacettepe Üniversitesi, Hacettepe Ankara Sanayi Odası 1. Osb Meslek Yüksekokulu (Silinecek), 2006 - 2012

Courses

ENJ632 Enerjiye Giriş, Postgraduate, 2017 - 2018

ENJ644 Temiz Tükenmez Enerji Sistemleri, Postgraduate, 2017 - 2018

ENJ631 Mühendislik Matematiği, Postgraduate, 2016 - 2017

ENJ655 ENERJİ MÜH. LAB, Postgraduate, 2016 - 2017

FİZ137 Physics I, Undergraduate, 2016 - 2017

FİZ 103 Fizik Lab. I, Undergraduate, 2016 - 2017
FİZ 307 Termodinamik, Undergraduate, 2016 - 2017
ENJ650 SEMİNER, Postgraduate, 2016 - 2017

Advising Theses

- Eray A., Türkiye'de elektrikli araçların orta gerilim dağıtım şebekesine etkisinin değerlendirilmesi, Postgraduate, S.CEM(Student), 2021
- Eray A., Fotovoltaik sistemler için prototip batarya yönetimi sistemi geliştirilmesi, Postgraduate, K.OKAY(Student), 2021
- Eray A., Türkiye için %100 yenilenebilir enerji sisteminin teknico-ekonomik analizi, Postgraduate, A.AKGÜN(Student), 2021
- Eray A., İç Anadolu Bölgesi'nde kullanılmayan rüzgar enerji potansiyelinin belirlenmesi ve modellenmesi, Postgraduate, E.KÜLÜM(Student), 2019
- Eray A., ARA AKSOY S., TÜRKİYE'NİN RÜZGAR ENERJİSİ POLİTİKALARININ ETKİNLİĞİNİN İNCELENMESİ, Postgraduate, S.ÜNSAL(Student), 2019
- Eray A., PVSYST YAZILIMI KULLANILARAK ÖRNEK BİR GÜNEŞ ENERJİLİ SU POMPALAMA SİSTEMİ TASARLANMASI VE KONVANSİYONEL SİSTEMLERLE KARŞILAŞTIRILMASI, Postgraduate, E.SARI(Student), 2019
- Eray A., Fotovoltaik panellerde gölge ve toz etkisinin analizi, Postgraduate, G.GENÇ(Student), 2018
- ERAY A., Merkezi alıcı sistemli (MAS) güneş güç santrali Birecik uygulaması, Postgraduate, M.HEKİM(Student), 2017
- ERAY A., AMPS-1D programı kullanılarak güneş gözelerinin bilgisayar modellemesi, Postgraduate, T.OCAK(Student), 2017
- ERAY A., Fotovoltaik modüllerde gerilim kaynaklı bozulmaların incelenmesi, Postgraduate, T.ALPEREN(Student), 2016
- ERAY A., Beytepe Güneş Evi'ndeki fotovoltaik sistemin performansının incelenmesi, Postgraduate, A.CİNDARİK(Student), 2016
- ERAY A., Fotovoltaik güç santrali bağlı bir şebekede güç kalitesi ölçümleri, Postgraduate, Ö.TANRIVERDİ(Student), 2015
- ERAY A., Çift eksende mikrokontrollü güneş izleme sistemi, Postgraduate, M.ANAMERİÇ(Student), 2014
- ERAY A., KUTU TİPİNDE GÜNEŞ ENERJİLİ FIRINLARIN TASARIMI VE TEST EDİLMESİ, Postgraduate, E.EMEL(Student), 2014
- ERAY A., Stirling çevrimi kullanan çanak tipi yoğunlaştırıcı güç sistemlerinin incelenmesi ve model bir sistemin tasarlanması, Postgraduate, G.ACAROL(Student), 2013
- ERAY A., Türkiye iklim koşullarında fotovoltaik güç sistemlerinin tasarımını ve maliyet analizi, Postgraduate, E.KESKİN(Student), 2012
- ERAY A., Hidrojenlendirilmiş amorf silikon-kristal silikon heteroeklem güneş gözelerinin bilgisayar modellemesi, Postgraduate, M.BİLGİÇ(Student), 2011
- ERAY A., Güneş gözelerinin üretilmesinde son gelişmelerin araştırılması, Postgraduate, G.GÜL(Student), 2008
- ERAY A., KARARLI DURUM FOTO TASİYICI GIRİSIM DESENI DÜZENEGİNİN KURULMASI, Postgraduate, T.Öztürk(Student), 2006
- ERAY A., Hidrojenlendirilmiş amorf silisyum deneklerde modüle edilmiş fotoiletkenlik ölçümleri, Postgraduate, E.UMUT(Student), 2006
- ERAY A., HIDROJENLENDİRİLMİŞ AMORF SILİSYUM FILİMLERDE UZAY YÜKÜ İLE SINIRLI AKIM TEKNİĞİ İLE DURUM YOGUNLUGUNUN BELİRLENMESİ, Postgraduate, T.OKAT(Student), 2001
- ERAY A., A-Si:H FILİMLERDE İSİL UYARMALı AKIM VE FOTOILETKENLİK ÖLÇÜMLERİ, Postgraduate, E.TOPÇU(Student), 1996

Published journal articles indexed by SCI, SSCI, and AHCI

- I. Development of prototype battery management system for PV system
Okay K., Eray S., ERAY A.
Renewable Energy, vol.181, pp.1294-1304, 2022 (SCI-Expanded)
- II. Doping-free silicon thin film solar cells using a vanadium pentoxide window layer and a LiF/Al back

electrode

- JUNG H. H., KWON J., LEE S., KIM C. S., NAM K., JEONG Y., CHUNG K., RYU S. Y., OCAK T., ERAY A., et al.
APPLIED PHYSICS LETTERS, vol.103, no.7, 2013 (SCI-Expanded)
- III. **AMPS-1D modeling of a-Si:H n+-i-n+ structure: The validity of space charge limited current analysis**
ERAY A., Nobile G.
Turkish Journal of Physics, vol.28, no.1, pp.31-39, 2004 (SCI-Expanded)
- IV. **Analysis of the structural parameters of an a-Si : H n(+) -i-n(+) structure by numerical simulations**
Eray A., NOBILE G.
JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS, vol.14, pp.735-736, 2003 (SCI-Expanded)
- V. **Evaluation of the density of states parameters of a-Si : H by AC photoconductivity measurements and numerical simulation**
Eray A., NOBILE G., PALMA F.
MATERIALS SCIENCE AND ENGINEERING B-SOLID STATE MATERIALS FOR ADVANCED TECHNOLOGY, vol.102, pp.398-402, 2003 (SCI-Expanded)
- VI. **Evaluation of the gap state distribution in a-Si : H by SCLC measurements**
Eray A., Nobile G.
SOLAR ENERGY MATERIALS AND SOLAR CELLS, vol.76, no.4, pp.521-528, 2003 (SCI-Expanded)
- VII. **Kinetics of light-induced metastable defect creation and annealing in a-Si:H**
Kodolbaş A. O., ERAY A., Öktü Ö.
Turkish Journal of Physics, vol.26, no.1, pp.33-39, 2002 (SCI-Expanded)
- VIII. **Effect of light-induced metastable defects on photocarrier lifetime**
KODOLBAS A., Eray A., OKTU O.
SOLAR ENERGY MATERIALS AND SOLAR CELLS, vol.69, no.4, pp.325-337, 2001 (SCI-Expanded)
- IX. **Light-induced metastable defects in a-Si : H studied by constant photocurrent method at 120 K**
KODOLBAS A., Eray A., OKTU O.
JOURNAL OF NON-CRYSTALLINE SOLIDS, vol.255, pp.132-139, 1999 (SCI-Expanded)
- X. **Growth of Si:H thin films by hot filament CVD: mu-Crystalline to amorphous transition**
Polini R., Barbarossa V., Minarini C., Eray A., Marucci A., Mattei G.
ADVANCES IN CRYSTAL GROWTH, vol.203, pp.167-172, 1996 (SCI-Expanded)
- XI. **OPTICAL-ABSORPTION COEFFICIENTS IN A-SI1-XCX-H**
OKTU O., LAUWERENS W., USALA S., ADRIAENSSENS G., VERBEKE O., ERAY A., TOLUNAY H.
MATERIALS SCIENCE AND ENGINEERING B-SOLID STATE MATERIALS FOR ADVANCED TECHNOLOGY, vol.11, pp.47-50, 1992 (SCI-Expanded)
- XII. **THE EVALUATION OF MOTT PARAMETERS BY USING THE FIELD-DEPENDENT CONDUCTIVITY IN AMORPHOUS-GERMANIUM**
ERAY A., TOLUNAY H., OKTU O.
JOURNAL OF NON-CRYSTALLINE SOLIDS, vol.122, no.2, pp.193-196, 1990 (SCI-Expanded)

Books & Book Chapters

- I. **Chapter 10 - The Optimization of A-Si:H Pin Solar Cells : More Insight from Simulation**
ERAY A., Nobile G.
in: Recent developments in solar energy, Tom Houng, Editor, Nova Science Publishers, Cccnew York, pp.313-334, 2008

Refereed Congress / Symposium Publications in Proceedings

- I. **Feasibility study of dish/stirling power systems in Turkey**
ZILANLI G. A., ERAY A.

- 22nd International Conference on Concentrating Solar Power and Chemical Energy Systems, SolarPACES 2016,
Abu Dhabi, United Arab Emirates, 11 - 14 October 2016, vol.1850
- II. An Implementation of CSP With Solar Thermal Tower Power Plant of 10 MW
HEKİM m., ERAY A.
SOLARTR 2016, Abu Dhabi, United Arab Emirates, 6 - 08 December 2016
- III. A Small Sized Climate Chamber Developed For Potential Induced Degradation Measurement
ERAY S., KEŞKÜŞ T. A., ERAY A.
SOLARTR2016, 6 December - 08 June 2016
- IV. Module Based Monitoring System For Beytepe Solar House
ERAY S., CİNDARİK A., ERAY A.
SOLARTR2016, 6 - 08 December 2016
- V. Potential Induced Degradation For c Si Mini Modules
ERAY A., KEŞKÜŞ T. A.
SOLARTR2016, 6 - 08 December 2016, pp.228-234
- VI. Simulation of a Si H p i n solar cell using AMPS 1D
OCAK T., ERAY A.
SOLARTR2016, 6 - 08 December 2016
- VII. Feasibility Study of Dish Stirling Power System in Turkey
Acarol Zialnli G., ERAY A.
SOLARPACES 2016, 10 - 15 October 2016
- VIII. An Application of Central Receiver System to 10MW Solar Power Plant in Birecik of Urfa Turkey
HEKİM m., ERAY A.
SOLARPACES2016, 6 - 08 December 2016
- IX. Solar Energy Research at YETAM Hacettepe University
ERAY A.
POLIKOM 2016, İzmir, Turkey, 24 - 26 February 2016
- X. Development Of A Small Size Climate Chamber For Potential Induced Degradation Measurements
KEŞKÜŞ T. A., ERAY S., ERAY A.
POLİKOM 2016, 24 - 26 February 2016
- XI. Design And Construction Of Home Made Two Axis Solar Tracking System And Its Performance Evaluation in Beytepe Campus
ANAMERİÇ M., ERAY S., ERAY A.
POLİKOM 2016, 24 - 26 February 2016
- XII. Designing Of A Pv Monitoring System For Beytepe Solar House
CİNDARİK A., ERAY S., ERAY A.
POLİKOM 2016, 24 - 26 February 2016
- XIII. Power quality analysis of Hacettepe Technopolis PV system
TANRIVERDİ Ö., ERAY A.
31st European Photovoltaic Solar Energy Conference and Exhibition (EU PVSEC 2015), Hamburg, Germany, 14 - 18 September 2015
- XIV. Simulation Studies on Hydrogenated Amorphous Silicon Solar Cells
AKSARI BİLGİÇ m., GIUSEPPE n., ERAY A.
E-MRS 2015, Lille, France, 11 - 15 May 2015
- XV. Performance Degradation Of A Si Modules In Beytepe Ankara Climate Conditions
ALPEREN KEŞKÜŞ T., CİNDARİK A., GÜLİN ZİLANLI A., ERAY S., ERAY A.
SolarTR-3 Third Turkish Solar Electricity Conference and Exhibition, Ankara, Turkey, 27 - 29 April 2015
- XVI. Hacettepe University Renewable Energies Graduate Program
ERAY A.
Photovoltaic Worksop, Türk-Alman Araştırma, Eğitim ve İnovasyon Yılı 2014 ve AB 7. çerçeveCHEETAH projesi ç, İstanbul, Turkey, 16 - 17 July 2014
- XVII. Modelling and Optimization of a Si H c Si Heterojunction Solar Cells

- ERAY A., MELİS a. b.
26th EU PVSEC, Hamburg, Germany, 5 - 09 September 2011, pp.1497-1502
- XVIII. **Numerical Simulation of a Si H pin solar cell**
ERAY A., GIUSEPPE n.
26th EU PVSEC, 5 - 09 September 2011, pp.2519-2524
- XIX. **Computer Controlled Steady State Photo Carrier Grating Setup**
ERAY S., TÜRKER ö., ERAY A.
26th EU PVSEC, Hamburg, Germany, 5 - 09 September 2011, pp.241-248
- XX. **Optimization of a-Si: H/c-Si Heterojunction Solar Cells By Numerical Simulation**
AKSARI M. B., ERAY A.
Symposium R on Advanced Inorganic Materials and Concepts for Photovoltaics/Spring Meeting of the European-Materials-Research-Society (E-MRS), Nice, France, 9 - 13 May 2011, vol.10
- XXI. **Evaluation of the gap state distribution in a-Si : H by SCLC measurements**
Eray A., NOBILE G.
Conference of the NATO Advanced-Study-Institute on Photovoltaic and Photoactive Materials, SOZOPOL, Bulgaria, 9 - 21 September 2001, vol.80, pp.253-256
- XXII. **Light induced effects in a-Si_{1-x}Cx:H with low carbon content**
KODOLBAS A., ERAY A., TOLUNAY H., GUNGOR T., ADRIAENSSENS G., OKTU O.
8th International School on Condensed Matter Physics - Electronic, Optoelectronic and Magnetic Thin Films, Varna, Bulgaria, 18 - 23 September 1994, vol.1, pp.644-647
- XXIII. **AC theory of constant photocurrent measurement**
Conte G., ERAY A., Nobile G., Palma F.
Proceedings of the 1995 MRS Spring Meeting, San-Francisco, Costa Rica, 18 - 21 April 1995, vol.377, pp.509-514
- XXIV. **DENSITY OF LOCALIZED STATES IN GLOW-DISCHARGE A-SI_{1-x}Cx:H**
OKTU O., USALA S., ADRIAENSSENS G., TOLUNAY H., ERAY A.
CONF ON PHYSICAL CONCEPTS OF MATERIALS FOR NOVEL OPTOELECTRONIC DEVICE APPLICATIONS, Aachen, Germany, 28 October - 02 November 1990, vol.1361, pp.812-818

Other Publications

- I. **FMO Rüzgar ve Güneş Enerjisi Raporu**
Eray A., Piravadilli S.
Technical Report, pp.34-81, 2022

Supported Projects

- ERAY A., ERAY S., OKAY K., Project Supported by Higher Education Institutions, Fotovoltaik Sistemler için Prototip Batarya Yönetimi Sistemi Geliştirilmesi, 2018 - 2021
- ERAY A., Project Supported by Higher Education Institutions, Türkiye'de Çanak/Stirling Güç Sistemleri Üzerine Fizibilite Çalışması, 2016 - 2016
- ERAY A., Project Supported by Higher Education Institutions, FOTOVOLTAİK MODÜLLERDE GERİLİM KAYNAKLı BOZULMALARIN İNCELENMESİ, 2014 - 2016
- ERAY A., Project Supported by Higher Education Institutions, Beytepe Güneş Evi'ndeki Fotovoltaik Sistemin Performansını İncelemesi, 2014 - 2016
- ERAY A., TUBITAK Project, a Si H deneklerde Kararlı Durum Fototasetiyici Girişim Deseni Ölçümleri, 2003 - 2005
- Eray A., Öktü Ö., NATO Supported Research Project, Localized Electronic States in Glow-Discharge a-Si_{1-x}Cx:H, 1991 - 1996

Memberships / Tasks in Scientific Organizations

Fizik Mühendisleri Odası, Member, 2014 - Continues

GÜNDER, Member, 2012 - Continues

Temiz Enerji Vakfı, Board Member, 2000 - 2014

Enerji Bakanlığı Enerji tasarrufu koordinasyon Kurulu, Member, 2000 - 2007

Metrics

Publication: 38

Citation (WoS): 53

Citation (Scopus): 55

H-Index (WoS): 5

H-Index (Scopus): 5

Scholarships

NATO B2, TUBITAK, 1993 - 1994