

# Prof. Üner Çolak

## Personal Information

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## Education Information

Doctorate, Iowa State University, Nükleer Mühendislik, United States Of America 1986 - 1989

Postgraduate, Iowa State University, Nükleer Mühendislik, United States Of America 1983 - 1986

Undergraduate, İstanbul Teknik Üniversitesi, Kimya-Metalurji Fakültesi, Metalurji Ve Malzeme Mühendisliği Bölümü, Turkey 1977 - 1982

## Foreign Languages

English

## Research Areas

Mechanical Engineering, Energy, Conventional Energy Systems and Their Technology, Nuclear Energy, Solar energy, Metallurgical and Materials Engineering, Material science and engineering, Engineering and Technology

## Academic Titles / Tasks

Professor, İstanbul Teknik Üniversitesi, Enerji Enstitüsü, Nükleer Araştırmalar Anabilim Dalı, 2013 - Continues

Professor, Hacettepe Üniversitesi, Mühendislik Fakültesi, Nükleer Enerji Mühendisliği Bölümü, 2004 - 2013

Associate Professor, Hacettepe Üniversitesi, Mühendislik Fakültesi, Nükleer Enerji Mühendisliği Bölümü, 1994 - 2004

Assistant Professor, Hacettepe Üniversitesi, Mühendislik Fakültesi, Nükleer Enerji Mühendisliği Bölümü, 1989 - 1994

## Academic and Administrative Experience

İstanbul Teknik Üniversitesi, Enerji Enstitüsü, Yenilenebilir Enerji Anabilim Dalı, 2013 - Continues

Hacettepe Üniversitesi, Mühendislik Fakültesi, Nükleer Enerji Mühendisliği Bölümü, 2005 - Continues

Hacettepe Üniversitesi, Mühendislik Fakültesi, Nükleer Enerji Mühendisliği Bölümü, 2006 - 2008

Hacettepe Üniversitesi, Mühendislik Fakültesi, Nükleer Enerji Mühendisliği Bölümü, 1999 - 2002

## Courses

Cogeneration and Waste Heat Recover, Postgraduate, 2016 - 2017

## Jury Memberships

Associate Professor Exam, Doçentlik sınavı, İTÜ, April, 2017

## Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

- I. **Simultaneous multiple droplet impact and their interactions on a heated surface**  
Gültekin A., Erkan N., Ozdemir E., Çolak Ü., Suzuki S.  
EXPERIMENTAL THERMAL AND FLUID SCIENCE, vol.120, 2021 (Journal Indexed in SCI)
- II. **PIV measurement inside single and double droplet interaction on a solid surface**  
Gültekin A., Erkan N., Çolak Ü., Suzuki S.  
EXPERIMENTS IN FLUIDS, vol.61, no.10, 2020 (Journal Indexed in SCI)
- III. **The development of TM2-RIA code for TRIGA type research reactors**  
Allaf M. A., Şentürk Lüle S., Çolak Ü.  
ANNALS OF NUCLEAR ENERGY, vol.145, 2020 (Journal Indexed in SCI)
- IV. **Experimental and Numerical Investigation of Air Flow Motion in Cylinder of Heavy Duty Diesel Engines**  
Demirkesen C., Çolak Ü., Savci I. H., Zeren H. B.  
JOURNAL OF APPLIED FLUID MECHANICS, vol.13, no.2, pp.537-547, 2020 (Journal Indexed in SCI)
- V. **A stochastic evaluation of investments in combined cooling, heat, and power systems**  
Ersoz I., Çolak Ü.  
APPLIED THERMAL ENGINEERING, vol.146, pp.376-385, 2019 (Journal Indexed in SCI)
- VI. **Synthesis and characterization of solvent-free hybrid alkyd resin with hyperbranched melamine core**  
Gunduz G., Keskin N., Çolak Ü., Maviş B.  
JOURNAL OF COATINGS TECHNOLOGY AND RESEARCH, vol.15, pp.831-843, 2018 (Journal Indexed in SCI)
- VII. **Highly efficient poly(fluorene phenylene) copolymer as a new class of binder for high-capacity silicon anode in lithium-ion batteries**  
YUCA N., Cetintasoglu M. E., Dogdu M. F., AKBULUT H., Tabanlı S., Çolak Ü., Taskin O. S.  
INTERNATIONAL JOURNAL OF ENERGY RESEARCH, vol.42, no.3, pp.1148-1157, 2018 (Journal Indexed in SCI)
- VIII. **Use of functionalized boehmite nanoparticles to improve the hardness and tribological properties of polyurethane films**  
Eroglu G., Gunduz G., Çolak Ü., MAVİŞ B.  
JOURNAL OF POLYMER RESEARCH, vol.25, no.2, 2018 (Journal Indexed in SCI)
- IX. **A new method in beam shaping: Multi-Objective Genetic Algorithm method coupled with a Monte-Carlo based reactor physics code**  
TÜRKMEN M., ERGÜN Ş., Çolak Ü.  
PROGRESS IN NUCLEAR ENERGY, vol.99, pp.165-176, 2017 (Journal Indexed in SCI)
- X. **MoO<sub>x</sub> Doped Single-Walled Carbon Nanotube Films as Hole Transport Layer for Organic Solar Cells**  
COLAK F., DALKILIC Z., TABATABAEI A., ATLIBATUR R., Çolak Ü., Arıcı E. Ü., KARATEPE N.  
ACTA PHYSICA POLONICA A, vol.131, no.3, pp.474-476, 2017 (Journal Indexed in SCI)
- XI. **A Monte Carlo Library Least Square approach in the Neutron Inelastic scattering and Thermal-capture Analysis (NISTA) process in bulk coal samples**  
Reyhancan İ. A., EBRAHİMİ A., Çolak Ü., Erduran M. N., ANGIN N.  
NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT, vol.843, pp.29-33, 2017 (Journal Indexed in SCI)
- XII. **A facile and functional process to enhance electrochemical performance of silicon anode in lithium ion batteries**  
YUCA N., Çolak Ü.  
ELECTROCHIMICA ACTA, vol.222, pp.1538-1544, 2016 (Journal Indexed in SCI)
- XIII. **Combined cooling, heat and power planning under uncertainty**  
Ersoz I., Çolak Ü.  
ENERGY, vol.109, pp.1016-1025, 2016 (Journal Indexed in SCI)
- XIV. **Synthesis and characterization of multi-hollow opaque polymer pigments**  
Asmaoglu S., Gunduz G., MAVİŞ B., Colak U.

- JOURNAL OF APPLIED POLYMER SCIENCE, vol.133, no.29, 2016 (Journal Indexed in SCI)
- XV. **Properties of Heavyweight Concrete for Structural and Radiation Shielding Purposes**  
Ozen S., SENGUL C., ERENOGLU T., Çolak Ü., REYHANCAN İ. A. , TASDEMİR M. A.  
ARABIAN JOURNAL FOR SCIENCE AND ENGINEERING, vol.41, no.4, pp.1573-1584, 2016 (Journal Indexed in SCI)
- XVI. **Core map generation for the ITU TRIGA Mark II research reactor using Genetic Algorithm coupled with Monte Carlo method**  
TÜRKMEN M., Çolak Ü., ERGÜN Ş.  
NUCLEAR ENGINEERING AND DESIGN, vol.295, pp.84-95, 2015 (Journal Indexed in SCI)
- XVII. **Effect of burnup on the neutronic parameters of ITU TRIGA Mark II research reactor**  
TÜRKMEN M., Çolak Ü., ERGÜN Ş.  
PROGRESS IN NUCLEAR ENERGY, vol.83, pp.26-34, 2015 (Journal Indexed in SCI)
- XVIII. **CFD Simulations of Hydrodynamics of Conical Spouted Bed Nuclear Fuel Coaters**  
Lule S. S. , Çolak Ü., KÖKSAL M., KÜLAH G.  
CHEMICAL VAPOR DEPOSITION, vol.21, pp.122-132, 2015 (Journal Indexed in SCI)
- XIX. **Modification of the radial beam port of ITU TRIGA Mark II research reactor for BNCT applications**  
Akan Z., TÜRKMEN M., Çakır T., Reyhancan İ. A. , Çolak Ü., OKKA M., KIZILTAS S.  
APPLIED RADIATION AND ISOTOPES, vol.99, pp.110-116, 2015 (Journal Indexed in SCI)
- XX. **Analysis of ITU TRIGA Mark II research reactor using Monte Carlo method**  
TÜRKMEN M., Çolak Ü.  
PROGRESS IN NUCLEAR ENERGY, vol.77, pp.152-159, 2014 (Journal Indexed in SCI)
- XXI. **Synthesis and characterization of erbia and ceria doped calcia stabilized nanocrystalline zirconia based ceramics**  
Uslu I., Aytimur A., Kocyigit S., Ozcan F., Ozturk M. K. , Colak U.  
JOURNAL OF SOL-GEL SCIENCE AND TECHNOLOGY, vol.65, no.2, pp.112-120, 2013 (Journal Indexed in SCI)
- XXII. **Synthesis and characterization of copper phthalocyanine and tetracarboxamide copper phthalocyanine deposited mica-titania pigments**  
Topuz B. B. , Gunduz G., MAVIŞ B., Colak U.  
DYES AND PIGMENTS, vol.96, no.1, pp.31-37, 2013 (Journal Indexed in SCI)
- XXIII. **Effect of pebble packing on neutron spectrum and the isotopic composition of HTGR fuel**  
TÜRKMEN M., Colak U.  
ANNALS OF NUCLEAR ENERGY, vol.46, pp.29-36, 2012 (Journal Indexed in SCI)
- XXIV. **Synthesis of zirconium tungstate-zirconia core-shell composite particles**  
Khazeni N., MAVIŞ B., Gunduz G., Colak U.  
MATERIALS RESEARCH BULLETIN, vol.46, no.11, pp.2025-2031, 2011 (Journal Indexed in SCI)
- XXV. **Computational fluid dynamics modeling of momentum transport in rotating wall perfused bioreactor for cartilage tissue engineering**  
Cinbiz M. N. , Tigli R. S. , Beskardes I. G. , GÜMÜŞDERELİOĞLU M., Colak U.  
JOURNAL OF BIOTECHNOLOGY, vol.150, no.3, pp.389-395, 2010 (Journal Indexed in SCI)
- XXVI. **Compatibility analysis of Nylon 6 and poly(ethylene-n-butyl acrylate-maleic anhydride) elastomer blends using isothermal crystallization kinetics**  
Biber E., Gunduz G., MAVIŞ B., Colak U.  
MATERIALS CHEMISTRY AND PHYSICS, vol.122, no.1, pp.93-101, 2010 (Journal Indexed in SCI)
- XXVII. **Effects of electrospinning process parameters on nanofibers obtained from Nylon 6 and poly(ethylene-n-butyl acrylate-maleic anhydride) elastomer blends using Johnson S-B statistical distribution function**  
Biber E., Gunduz G., MAVIŞ B., Colak U.  
APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING, vol.99, no.2, pp.477-487, 2010 (Journal Indexed in SCI)
- XXVIII. **Synthesis, characterization and osteoblastic activity of polycaprolactone nanofibers coated with biomimetic calcium phosphate**  
MAVIŞ B., Demirtas T. T. , GÜMÜŞDERELİOĞLU M., Gunduz G., Colak U.  
ACTA BIOMATERIALIA, vol.5, no.8, pp.3098-3111, 2009 (Journal Indexed in SCI)

- XXIX. **Performance analysis of TRISO coated fuel particles with kernel migration**  
Çolak Ü.  
JOURNAL OF NUCLEAR MATERIALS, vol.374, pp.168-177, 2008 (Journal Indexed in SCI Expanded)
- XXX. **Monte Carlo criticality calculations for a pebble bed reactor with MCNP**  
Çolak Ü., Şeker V.  
NUCLEAR SCIENCE AND ENGINEERING, vol.149, pp.131-137, 2005 (Journal Indexed in SCI Expanded)
- XXXI. **Comparison of pressure vessel integrity analyses and approaches for VVER 1000 and PWR vessels for PTS conditions**  
Gulol O., Colak U.  
NUCLEAR ENGINEERING AND DESIGN, vol.226, no.3, pp.231-241, 2003 (Journal Indexed in SCI)
- XXXII. **HTR-10 full core first criticality analysis with MCNP**  
Seker V., Colak U.  
NUCLEAR ENGINEERING AND DESIGN, vol.222, pp.263-270, 2003 (Journal Indexed in SCI)
- XXXIII. **PWR system simulation and parameter estimation with neural networks**  
Akkurt H., Colak U.  
ANNALS OF NUCLEAR ENERGY, vol.29, no.17, pp.2087-2103, 2002 (Journal Indexed in SCI)
- XXXIV. **Comparative analysis of pressure vessel integrity for various LOCA conditions**  
Colak U., OZDERE O.  
JOURNAL OF NUCLEAR MATERIALS, vol.297, no.3, pp.271-278, 2001 (Journal Indexed in SCI)
- XXXV. **Burnup characteristics and performance of boron nitride and boron coated urania and urania-gadolinia fuels**  
Durmazucar H., Colak U., SARIKAYA B., GUNDUZ G.  
NUCLEAR ENGINEERING AND DESIGN, vol.203, no.1, pp.57-64, 2001 (Journal Indexed in SCI)

### Articles Published in Other Journals

- I. **Systematic structural characterization of high-density porous silicon anodes in lithium-ion batteries**  
YUCA DOĞDU N., ÇOLAK Ü.  
Energy Storage, vol.1, no.5, 2019 (Refereed Journals of Other Institutions)
- II. **COMPUTATIONAL FLUID DYNAMICS ANALYSIS OF FLOW AND COMBUSTION OF A DIESEL ENGINE**  
Abay K., Çolak Ü., YÜKSEK L.  
JOURNAL OF THERMAL ENGINEERING, vol.4, no.2, pp.1879-1895, 2018 (Journal Indexed in ESCI)
- III. **Nuclear desalination with PBMR**  
Sen R. S., Colak U., Kadiroglu O. K.  
International Journal of Nuclear Desalination, vol.1, no.2, pp.271-279, 2004 (Refereed Journals of Other Institutions)

### Refereed Congress / Symposium Publications in Proceedings

- I. **CRITICALITY ANALYSIS OF PROPOSED TRIGA SPENT FUEL PIT DESIGN FOR VARIOUS HYPOTHETICAL EVENTS**  
BEKTAŞ S., ŞENTÜRK LÜLE S., ÇOLAK Ü.  
29th International Conference Nuclear Energy for New Europe, Portoroz, Slovenia, 7 - 10 September 2020
- II. **Interaction phenomena of simultaneous multiple droplet on a heated surface**  
GÜLTEKİN A., Erkan N., Özdemir E., ÇOLAK Ü.  
The 12th Joint Symposium on Nuclear Science and Technology, 1 - 04 December 2019
- III. **Dose calculations of anthropomorphic voxel-based phantom for Am-241/Be neutron source**  
SARIOĞLU B., ŞENTÜRK LÜLE S., ÇOLAK Ü.  
BgNS International Conference Nuclear Energy For The People, 4 - 07 October 2019

- IV. **Numerical Investigation of a Single Droplet Impact onto Hot Surface by VOF Method at High Weber Numbers**  
ALLAF M., GÜLTEKİN A., ÇOLAK Ü.  
International Conference for Nuclear Energy in New Europe, Portoroz, Slovenia, 10 - 13 September 2018
- V. **Doppler Broadening Effect on Reactivity Feedback in ITU TRIGA MARK II Research Reactor**  
Allaf M., KUTBAY F., ŞENTÜRK LÜLE S., ÇOLAK Ü.  
27th International Conference Nuclear Energy for New Europe, 10 - 13 September 2018
- VI. **Doppler Broadening Effect on Reactivity Feedback in ITU TRIGA MARK II Research Reactor II**  
ALLAF M., KUTBAY F., LULE S. Ş. , ÇOLAK Ü.  
27th International Conference Nuclear Energy for New Europe, 10 - 13 September 2018, pp.2221-2226
- VII. **Nuclear energy Historical developments and future perspectives**  
ÇOLAK Ü.  
4th International Conference on Theoretical and Experimental Studies in Nuclear Applications and Technology, Antalya, Turkey, 20 - 22 April 2018, pp.2-4
- VIII. **Combination Effect Pigments**  
KALYONCU B. B. , KAHYA S. S. , SÖNMEZ Y., MAVİŞ B., ÇOLAK Ü., GUNDUZ G.  
Paintistanbul Turkcoat 2018 International Congress, İstanbul, Turkey, 20 - 21 March 2018
- IX. **The Future of Nuclear Energy and Changing Roles**  
ÇOLAK Ü., LULE S. Ş.  
Innternational Energy Raw Materials and Energy Summit, Turkey, 27 September - 30 December 2017
- X. **On-line coal analyzer with 14 MeV neutron generator**  
ÇOLAK Ü., REYHANCAN İ. A. , ERDURAN M. N.  
XII Balkan Mineral Processing Congress, 1 - 03 November 2017
- XI. **Near zero thermal expansion ZrW2O8/ZrO2 composites**  
MAVİŞ B., VURAL İ., GUNDUZ G., ÇOLAK Ü., ÇELİK A.  
15th Conference Exhibition of the European Ceramic Society (ECERS 2017), 9 - 13 July 2017
- XII. **Teaching, Training, and Research Activities on Nuclear Fieldin Turkey**  
ÇOLAK Ü.  
International Confrence on Capacity Building for Nuclear Industry: New Challenges in the Era of Globalization, Obninsk, Russia, 4 - 06 July 2017
- XIII. **Application of library least square method in neutron inelastic scattering anf thermal capture analysis**  
ÇOLAK Ü., ebrahimi a., ERDURAN M. N. , REYHANCAN İ. A. , angin n.  
24th International conferenceon the application of accelerators in research and industry, 30 October - 04 November 2016
- XIV. **Application of Library Least Square Method in Neutron Inelastic Scattering and Thermal Analysis**  
ÇOLAK Ü., REYHANCAN İ. A. , ERDURAN M. N. , EBRAHIMI A., ANGIN N.  
24. Conference on Accelerator Applications in Research and Industry, Fort Worth, United States Of America, 30 October - 04 November 2016
- XV. **Physical mechanical and radiation properties of heavyweight concretes used for structural and radiation shileding purposes**  
ÖZEN S., sengül c., ÇOLAK Ü., taşdemir m. a. , REYHANCAN İ. A.  
International Conference on Engineering and Natural Sciences, 24 - 28 May 2016
- XVI. **MoOx Doped Single Walled Carbon Nanotube Filmsas Hole Transport Layer for Organic Solar Cells**  
Atlibatur R., Colak F., Dalkılıç Z., Tatatabai A., ÇOLAK Ü., ARICI E. Ü. , YAVUZ N.  
6th APMAS, International Advances in Applied Physics and Materials Sciences Congress and Exhibition, İstanbul, Turkey, 1 - 03 June 2016
- XVII. **Physical Mechanical and Radiational Properties of Heavyweight Concretes Used for Structural and Radiation**  
ÖZEN S., SENGUL C., ÇOLAK Ü., TASDEMİR M. A. , REYHANCAN İ. A.  
International Conference on Engineering amd Natural Sciences, Sarajevo, Bosnia And Herzegovina, 24 - 28 May

2016, pp.1968-1975

- XVIII. Development Of Carbon Nanotube-Based Organic Solar Cells**  
Tabatabaei Mohseni A., Çolak F., Dalkılıç Z., Laki M., Atılbatur R., Çolak Ü., Yavuz N.  
1st International Symposium "Functional Nanomaterials in Industrial Applications: Academic- Industry Meet, Preston, United Kingdom, 29 - 31 March 2016, pp.130
- XIX. Fabrication of Single-Walled Carbon Nanotube Thin Films**  
Çolak F., Tabatabaei Mohseni A., Çolak Ü., Yavuz N.  
1st International Symposium "Functional Nanomaterials in Industrial Applications: Academic- Industry Meet, Preston, United Kingdom, 29 - 31 March 2016, pp.120
- XX. Use of PFTNA for On Line Coal Analysis**  
ÇOLAK Ü., ERDURAN M. N. , REYHANCAN İ. A.  
2015 ANS Winter Meeting and Nuclear Techno Expo, Washington, United States Of America, 8 - 12 November 2015, vol.113, pp.479-480
- XXI. Accident Tolerant Fuel**  
Şentürk Lüle S., Çolak Ü.  
International Energy Raw Materials and Energy Summit, İstanbul, Turkey, 1 - 03 October 2015, pp.6-13
- XXII. Thorium as Nuclear Fuel**  
Şentürk Lüle S., Çolak Ü.  
International Energy Raw Materials and Energy Summit, İstanbul, Turkey, 1 - 03 October 2015, pp.1-6
- XXIII. Accident Tolerant Fuels for Nuclear Reactors**  
ÇOLAK Ü., LULE S. Ş.  
INTERNATIONAL ENERGY RAW MATERIALS AND ENERGY SUMMIT, İstanbul, Turkey, 30 September - 03 October 2015
- XXIV. Neutronic Comparison of Proposed Claddings for Accident Tolerant Fuel with Zirconium Based Cladding in PWRs**  
Şentürk Lüle S., Çolak Ü.  
International Conference on Nuclear Power for the People, Sozopol, Bulgaria, 2 - 05 September 2015, pp.1-5
- XXV. Application of Monte Carlo Techniques to Dose Rate Calculations of Gamma Irradiation Facility**  
Şentürk Lüle S., Çolak Ü.  
23rd WiN Global Annual Conference, Viyana, Austria, 24 - 28 August 2015, pp.89
- XXVI. Development of MoO<sub>x</sub>-CNT Combined Buffer Layer for Performance Improvement in Organic Solar Cells**  
Çolak F., Dalkılıç Z., Tabatabaei Mohseni A., Laki M., Çolak Ü., Yavuz N.  
The sixteenth International Conference on the Science and Application of Nanotubes, Nagoya, Japan, 28 June - 03 July 2015, pp.443
- XXVII. Nuclear Power projects in Turkey and Human Resource Development Activities**  
Şentürk Lüle S., Çolak Ü.  
International Conference on Nuclear Human Resources Development in Asia and the Pacific, Jakarta, Indonesia, 23 - 30 October 2014, pp.1
- XXVIII. Fuel Burnup Calculation in ITU TRIGA Mark II Research Reactor by Using Monte Carlo Method**  
TÜRKMEN M., Çolak Ü.  
23rd International Conference on Nuclear Energy for New Europe (NENE), Portoroz, Slovenia, 8 - 11 September 2014
- XXIX. High Purity Single Walled Carbon Nanotubes as Transparent Electrode Materials**  
Laki M., Tabatabai A., ÇOLAK Ü., YAVUZ N., ARICI E. Ü.  
SolarTR-3, Third Turkish Solar Electricity and Exhibition Conference, Ankara, Turkey, 27 - 30 April 2015
- XXX. A New Integral Fuel Burnable Absorber Design for LWR's**  
Çolak Ü., Durmazuçar H. H. , Gündüz G.  
1997 International Topical Meeting on LWR Fuel Performance, Portland, United States Of America, 2 - 06 March 1997, pp.536-539

## Supported Projects

Çolak Ü., Project Supported by Higher Education Institutions, Kütüphane en küçük kareler metodunun nötron inelastik saçılma ve termal yutma analizine uygulanması, 2016 - 2018

Çolak Ü., Project Supported by Higher Education Institutions, Molibden Oksitin Organik Güneş Pillerinde Hol Taşıyıcı Tabaka Olarak Kullanımının İncelenmesi, 2015 - 2018

Çolak Ü., Project Supported by Higher Education Institutions, GERÇEK ZMANLI KÖMÜR ANALİZİ İÇİN PFTNA YÖNTEMİNİN KULLANIMI, 2015 - 2018

## Edit Congress and Symposium Activities

4th International Conference on Theoretical and Experimental Studies in Nuclear Applications and Technology, Invited Speaker, Antalya, Turkey, 2018

CAARI 2016. 24th Conference on Application of Accelerators in Research and Industry, Session Moderator, Texas, United States Of America, 2016

## Citations

Total Citations (WOS):339

h-index (WOS):10