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International Researcher IDs

ORCID: 0000-0003-4963-5472

Publons / Web Of Science ResearcherID: G-9879-2014

ScopusID: 36342500700

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Education Information

Doctorate, Istanbul Technical University, Makine Fakültesi, Makine Mühendisliği Bölümü, Turkey 2007 - 2013

Postgraduate, Istanbul Technical University, Makine Fakültesi, Makine Mühendisliği Bölümü, Turkey 2004 - 2006

Undergraduate, Istanbul Technical University, Uçak Ve Uzay Bilimleri Fakültesi, Uçak Mühendisliği Bölümü, Turkey 1999 - 2004

Foreign Languages

English

Dissertations

Doctorate, Mechanics of nanomaterials consisted of random networks, İstanbul Teknik Üniversitesi, Makine Fakültesi, Makine Mühendisliği Bölümü, 2013

Postgraduate, Mikro hücreli karbon köpüklerin istatistiksel ve sayısal olarak modellenmesi, İstanbul Teknik Üniversitesi, Makine Fakültesi, Makine Mühendisliği Bölümü, 2006

Research Areas

Technical Sciences, Mechanical Engineering, Mechanical, Solid Mechanics, Fracture Mechanics, Finite Element Methods, Continuous Mechanics, Aeronautical and Space Engineering, Aeronautical Engineering , Structural Technologies, Material Technologies, Metallic Materials

Academic Titles / Tasks

Associate Professor, Istanbul Technical University, Makina, Makina Mühendisliği, 2013 - Continues

Research Assistant, University of Pittsburgh, İnşaat Fakültesi, İnşaat Mühendisliği, 2009 - 2010

Courses

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Mechanical characteristics and failure behavior of puckered and buckled allotropes of antimonene nanotubes: a molecular dynamics study**
Cetin M., Kirca M.
Physical Chemistry Chemical Physics, vol.25, no.34, pp.22626-22643, 2023 (SCI-Expanded)
- II. **Buckling performance of fuselage panels reinforced with Voronoi-type stiffeners**
Bostan B., Kusbeci M., Cetin M., Kirca M.
International Journal of Mechanical Sciences, vol.240, 2023 (SCI-Expanded)
- III. **Mechanical properties of fullerene embedded silicon nanowires**
Erbaş B., Yardim S., Kirca M.
ARCHIVE OF APPLIED MECHANICS, vol.93, no.1, pp.355-367, 2023 (SCI-Expanded)
- IV. **Tensile behavior of nanoporous polyethylene reinforced with carbon-based nanostructures**
Degirmenci U., Erturk A. S., Yurtalan M. B., Kirca M.
COMPUTATIONAL MATERIALS SCIENCE, vol.186, 2021 (SCI-Expanded)
- V. **Strain rate effects on tensile and compression behavior of nano-crystalline nanoporous gold: A molecular dynamic study**
Yıldız Y. O., Ahadi A., Kirca M.
MECHANICS OF MATERIALS, vol.143, 2020 (SCI-Expanded)
- VI. **'Explicit' and 'implicit' non-local continuous descriptions for a plate with circular inclusion in tension**
Tuna M., Leonetti L., Trovalusci P., Kirca M.
MECCANICA, vol.55, no.4, pp.927-944, 2020 (SCI-Expanded)
- VII. **Reverse non-equilibrium molecular dynamics simulations on the thermal conductivity of three-dimensional graphene nano-ribbon foams**
Degirmenci Ü., Kirca M.
JOURNAL OF PHYSICS AND CHEMISTRY OF SOLIDS, vol.136, 2020 (SCI-Expanded)
- VIII. **Energy dissipation characteristics of covalently-bonded stochastic carbon nanotube networks under compressive loading**
Kırkayak L., Bilgili D., Kirca M.
COMPOSITES PART B-ENGINEERING, vol.172, pp.195-205, 2019 (SCI-Expanded)
- IX. **Unification of Eringen's nonlocal parameter through an optimization-based approach**
Tuna Eroğlu M., Kirca M.
MECHANICS OF ADVANCED MATERIALS AND STRUCTURES, 2019 (SCI-Expanded)
- X. **Deformation of atomic models and their equivalent continuum counterparts using Eringen's two-phase local/nonlocal model**
Tuna Eroğlu M., Kirca M., Trovalusci P.
MECHANICS RESEARCH COMMUNICATIONS, vol.97, pp.26-32, 2019 (SCI-Expanded)
- XI. **Mechanical performance and morphological evolution of heat-treated nanoporous gold: A molecular dynamics study**
Erturk A. S., Yildiz Y. O., Kirca M.
PHYSICA E-LOW-DIMENSIONAL SYSTEMS & NANOSTRUCTURES, vol.108, pp.15-21, 2019 (SCI-Expanded)
- XII. **Compression and shear behavior of ultrathin coated nanoporous gold: A molecular dynamics study**
Yıldız Y. O., Kirca M.
JOURNAL OF APPLIED PHYSICS, vol.124, no.18, 2018 (SCI-Expanded)
- XIII. **Design and mechanical characterization of a novel carbon-based hybrid foam: A molecular dynamics study**

- Değirmenci Ü., Kirca M.
COMPUTATIONAL MATERIALS SCIENCE, vol.154, pp.122-131, 2018 (SCI-Expanded)
- XIV. **Nanoporous gold reinforced with carbon based nanomaterials: A molecular dynamics study**
Gülmez D. E., Yıldız Y. O., Kirca M.
COMPOSITES PART B-ENGINEERING, vol.151, pp.62-70, 2018 (SCI-Expanded)
- XV. **Mechanical enhancement of an aluminum layer by graphene coating**
ERTURK A. S., Kirca M., Kirkayak L.
JOURNAL OF MATERIALS RESEARCH, vol.33, no.18, pp.2741-2751, 2018 (SCI-Expanded)
- XVI. **Mechanical behavior of a novel carbon-based nanostructured aluminum material**
ERTURK A. S., Yıldız Y. O., Kirca M.
COMPUTATIONAL MATERIALS SCIENCE, vol.144, pp.193-209, 2018 (SCI-Expanded)
- XVII. **Bending, buckling and free vibration analysis of Euler-Bernoulli nanobeams using Eringen's nonlocal integral model via finite element method**
Tuna M., Kirca M.
COMPOSITE STRUCTURES, vol.179, pp.269-284, 2017 (SCI-Expanded)
- XVIII. **Effects of ultrathin coating on the tensile behavior of nanoporous gold**
Yıldız Y. O., Kirca M.
JOURNAL OF APPLIED PHYSICS, vol.122, no.8, 2017 (SCI-Expanded)
- XIX. **Respond to the comment letter by Romano and Barretta on the paper "Exact solution of Eringen's nonlocal integral model for bending of Euler-Bernoulli and Timoshenko beams"**
TUNA M., Kirca M.
International Journal of Engineering Science, vol.116, pp.141-144, 2017 (SCI-Expanded)
- XX. **The effects of intertube bridging through graphene nanoribbons on the mechanical properties of pillared graphene**
Bilgili D., Kirkayak L., Kirca M.
COMPOSITES PART B-ENGINEERING, vol.120, pp.1-9, 2017 (SCI-Expanded)
- XXI. **Atomistic simulation of Voronoi-based coated nanoporous metals**
Yıldız Y. O., Kirca M.
MODELLING AND SIMULATION IN MATERIALS SCIENCE AND ENGINEERING, vol.25, no.2, 2017 (SCI-Expanded)
- XXII. **Exact solution of Eringen's nonlocal integral model for vibration and buckling of Euler-Bernoulli beam**
Tuna M., Kirca M.
INTERNATIONAL JOURNAL OF ENGINEERING SCIENCE, vol.107, pp.54-67, 2016 (SCI-Expanded)
- XXIII. **Homogenization of additive manufactured polymeric foams with spherical cells**
Zeinalabedini H., Yıldız Y. O., Zhang P., Laux K., Kirca M., To A. C.
ADDITIVE MANUFACTURING, vol.12, pp.274-281, 2016 (SCI-Expanded)
- XXIV. **Exact solution of Eringen's nonlocal integral model for bending of Euler-Bernoulli and Timoshenko beams**
Tuna M., Kirca M.
INTERNATIONAL JOURNAL OF ENGINEERING SCIENCE, vol.105, pp.80-92, 2016 (SCI-Expanded)
- XXV. **Effects of lithium doping on hydrogen storage properties of heat welded random CNT network structures**
Baykasoglu C., Ozturk Z., Kirca M., Celebi A. T., MUGAN A., TO A. C.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.41, no.19, pp.8246-8255, 2016 (SCI-Expanded)
- XXVI. **Sandwiched graphene-fullerene composite: A novel 3-D nanostructured material for hydrogen storage**
Ozturk Z., Baykasoglu C., Kirca M.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.41, no.15, pp.6403-6411, 2016 (SCI-Expanded)
- XXVII. **Design and analysis of sandwiched fullerene-graphene composites using molecular dynamics simulations**
Kirca M.

COMPOSITES PART B-ENGINEERING, vol.79, pp.513-520, 2015 (SCI-Expanded)

XXVIII. Efficient Design-Optimization of Variable-Density Hexagonal Cellular Structure by Additive Manufacturing: Theory and Validation

Zhang P., TOMAN J., YU Y., BIYIKLI E., Kirca M., CHMIELUS M., TO A. C.

JOURNAL OF MANUFACTURING SCIENCE AND ENGINEERING-TRANSACTIONS OF THE ASME, vol.137, no.2, 2015 (SCI-Expanded)

XXIX. Hydrogen storage in heat welded random CNT network structures

Ozturk Z., Baykasoglu C., Celebi A. T., KIRCA M., Muğan A., TO A. C.

INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.40, no.1, pp.403-411, 2015 (SCI-Expanded)

XXX. Tensile behavior of heat welded CNT network structures

Celebi A. T., KIRCA M., Baykasoglu C., Muğan A., TO A. C.

COMPUTATIONAL MATERIALS SCIENCE, vol.88, pp.14-21, 2014 (SCI-Expanded)

XXXI. Nonlinear failure analysis of carbon nanotubes by using molecular-mechanics based models

Baykasoglu C., Kirca M., MUGAN A.

COMPOSITES PART B-ENGINEERING, vol.50, pp.150-157, 2013 (SCI-Expanded)

XXXII. A stochastic algorithm for modeling heat welded random carbon nanotube network

Kirca M., YANG X., To A. C.

COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING, vol.259, pp.1-9, 2013 (SCI-Expanded)

XXXIII. Thermal conductivity of periodic array of intermolecular junctions of silicon nanowires

Yang X., TO A. C., Kirca M.

PHYSICA E-LOW-DIMENSIONAL SYSTEMS & NANOSTRUCTURES, vol.44, no.1, pp.141-145, 2011 (SCI-Expanded)

XXXIV. On determining the thermal state of individual atoms in molecular dynamics simulations of nonequilibrium processes in solids

Fu Y., Kirca M., To A. C.

CHEMICAL PHYSICS LETTERS, vol.506, pp.290-297, 2011 (SCI-Expanded)

XXXV. Surface structure and properties of functionalized nanodiamonds: a first-principles study

Datta A., Kirca M., FU Y., To A. C.

NANOTECHNOLOGY, vol.22, no.6, 2011 (SCI-Expanded)

XXXVI. Ligament and joint sizes govern softening in nanoporous aluminum

To A. C., TAO J., Kirca M., SCHALK L.

APPLIED PHYSICS LETTERS, vol.98, no.5, 2011 (SCI-Expanded)

XXXVII. Computational modeling of micro-cellular carbon foams

Kirca M., GUL A., EKINCI E., Yardim F., MUGAN A.

FINITE ELEMENTS IN ANALYSIS AND DESIGN, vol.44, pp.45-52, 2007 (SCI-Expanded)

Articles Published in Other Journals

I. Compressive behavior and deformation mechanism of nanoporous open-cell foam with ultrathin ligaments

GIRI A., TAO J., WANG L., Kirca M., To A. C.

Journal of Nanomechanics and Micromechanics, vol.4, no.2, 2014 (ESCI)

II. Mechanical properties of SWNT X-junctions through molecular dynamics simulation

Stormer B., Piper N., Yang X., TAO J., FU Y., Kirca M., To A.

International Journal of Smart and Nano Materials, vol.3, no.1, pp.33-46, 2012 (Scopus)

Books & Book Chapters

I. Mechanics of CNT Network Materials

KIRCA M., TO A. C.

in: Advanced Computational Nanomechanics, Nuno Silvestre, Editor, WILEY, 2016

Metrics

Publication: 54

Citation (WoS): 708

Citation (Scopus): 965

H-Index (WoS): 13

H-Index (Scopus): 16

Non Academic Experience

General Electric

Korean Aerospace Industry (KAI)

Vestal Savunma Sanayii AŞ

Ford Otosan AS

Istanbul Teknik Universitesi, ITU-ROTAM