

Resume

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PERSONAL DATA:

Surname: Moradi
First name: Afshin
Date of birth: 07/08/1977
Place of birth: Kermanshah, Iran
Position: Associate Professor in Nano-Optics
Address: Department of Engineering Physics,
Kermanshah University of Technology,
Kermanshah, Iran.
E-mail: a.moradi@kut.ac.ir
Homepage: <http://research.kut.ac.ir/~amoradi/en/>



UNIVERSITY EDUCATION:

Ph. D. Physics (Nano-Optics), Razi University, Kermanshah, Iran (January 2006 to May 2009)
M. Sc. Physics (Quantum Optics), Razi University, Kermanshah, Iran (October 2002 to March 2004)
B. Sc. Physics, Razi University, Kermanshah, Iran (January 1995 to April 2000)

THESES TITLES:

Ph. D thesis: Collective excitations in carbon nanotubes
M. Sc thesis: Quantum theory of light in nonlinear media with dispersion and absorption

EMPLOYMENT:

Associate Professor, Department of Engineering Physics, Kermanshah University of Technology, Kermanshah, Iran (2015-Present)
Assistant Professor, Department of Engineering Physics, Kermanshah University of Technology, Kermanshah, Iran (2010-2015)
Non-Resident Researcher, School of Nano-Sciences, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran (2009 – 2015)

RESEARCH INTERESTS:

- 1) Nano-Optics
- 2) Nano-Photonics, Plasmonics
- 3) Carbon Nanotubes
- 4) Bioelectromagnetics

TEACHING EXPERIENCE:

Optics I
Optics II
Applied Optics
Modern Physics
Special Relativity
Differential equations
Theory of Electromagnetics I
Theory of Electromagnetics II
Mathematical Methods of Physics I
Fundamental of Physics: Mechanics
Fundamental of Physics: Electricity & Magnetism

RECENT PUBLICATIONS:

- [1] H. Khosravi and **A. Moradi**, "Comment on: Electromagnetic wave propagation in single-wall carbon nanotubes", *Phys. Lett. A* **364**, 515 (2007)
- [2] **A. Moradi** and H. Khosravi, "Plasmon dispersion in metallic carbon nanotubes in the presence of low-frequency electromagnetic radiation", *Phys. Lett. A* **371**, 1 (2007)
- [3] **A. Moradi** and H. Khosravi, "Collective excitations in single-walled carbon nanotubes ", *Phys. Rev. B* **76**, 113411 (2007)
- [4] **A. Moradi**, "Electron-hole plasma excitations in single-walled carbon nanotubes", *Phys. Lett. A* **372**, 5614 (2008)
- [5] **A. Moradi**, "Plasmon hybridization in metallic nanotubes", *J. Phys. Chem. Solids* **69**, 2936 (2008)
- [6] **A. Moradi**, "Plasma wave propagation in a pair of carbon nanotubes", *JETP Lett.* **88**, 795 (2008)
- [7] **A. Moradi**, "Electron-ion quantum plasma excitations in single-walled carbon nanotubes", *J. Phys.: Condens. Matter.* **21**, 045303 (2009)
- [8] **A. Moradi** and A. R. Meidanchi, "Magnetostatic modes hybridization in left-handed cylindrical shells", *Phys. Scr.* **79**, 045801 (2009)
- [9] **A. Moradi**, "Quantum ion-acoustic wave oscillations in C₆₀ molecule", *Physica E*, **41**, 1338 (2009)
- [10] **A. Moradi**, "Comment on: The single-wall carbon nanotube waveguides and excitation of their $\sigma+\pi$ plasmons by an electron beam", *Phys. Plasmas*, **16**, 054705 (2009)
- [11] **A. Moradi**, "Plasmon hybridization in metallic nanotubes with a nonconcentric core", *Opt. Commun* **282**, 3368 (2009)
- [12] **A. Moradi**, "Dust ion-acoustic wave oscillations in single-walled carbon nanotubes", *Physica E* **42**, 43 (2009)
- [13] **A. Moradi**, "Microwave absorption of magnetized hydrogen plasma in carbon nanotubes", *Phys. Plasmas* **16**, 113501 (2009)

- [14] **A. Moradi**, "Guided dispersion characteristics of metallic single-walled carbon nanotubes in the presence of dielectric media ", *Opt. Commun*, **283**, 160 (2010)
- [15] **A. Moradi**, "Dispersion properties of electrostatic sound wave modes in carbon nanotubes", *Phys. Plasmas*, **17**, 014504 (2010)
- [16] **A. Moradi**, "Microwave response of magnetized hydrogen plasma in carbon nanotubes: Multiple reflections effects ", *Appl. Opt*, **49**, 1728 (2010)
- [17] **A. Moradi**, "Oblique incidence scattering from single walled carbon nanotubes", *Phys. Plasmas*, **17**, 033504 (2010)
- [18] **A. Moradi**, "Comment on: Microwave attenuation of hydrogen plasma in carbon nanotubes", *J. Appl. Phys*, **107**, 066104 (2010)
- [19] **A. Moradi**, "Plasmon hybridization in tubular metallic nanostructures", *Physica B*, **405**, 2466 (2010)
- [20] **A. Moradi**, "Investigation of high and low-frequency electrostatic oscillations in multishell fullerenes", *Phys. Scr.*, **81**, 055701 (2010)
- [21] **A. Moradi**, "Theory of carbon nanotubes as optical nano waveguides", *J. Electromagn. Anal. Appl.* **2**, 672 (2010)
- [22] H. Khosravi and **A. Moradi**, "Scattering cross section of metallic two-walled carbon nanotubes", *Opt. Commun*, **284**, 2629 (2011)
- [23] **A. Moradi** and M. H. Teimourpour, "Microwave shielding of HiPco carbon nanotube films", *J. Plasma Physics* **77**, 639 (2011)
- [24] **A. Moradi**, "Ionic electrostatic excitations along biological membranes", *Phys. Plasmas*, **18**, 022112 (2011)
- [25] **A. Moradi**, "Plasmon hybridization in parallel nano-wire systems", *Phys. Plasmas*, **18**, 064508 (2011)
- [26] **A. Moradi**, "Electrostatic oscillations along cylindrical micelles", *J. Membrane. Biol*, **242**, 105 (2011)
- [27] H. Khosravi and **A. Moradi**, "Scattering properties of metallic carbon nanotubes in the presence of dielectric media", *J. Mod. Opt*, **58**, 1566 (2011)
- [28] **A. Moradi** and H. Khosravi, "Line-source scattering properties of metallic carbon nanotubes", *J. Opt. Soc. Am. A*, **28**, 1920 (2011)
- [29] **A. Moradi**, "Optical scattering by a spherical two-dimensional electron gas: application to the C₆₀ molecule", *Optik*, **123**, 325 (2012)
- [30] **A. Moradi** and F. Sharif, "Guided waves characteristics of multi-walled carbon nanotubes", *Opt. Commun*, **285**, 1163 (2012).
- [31] **A. Moradi**, "Plasmon hybridization in coated metallic nanowires", *J. Opt. Soc. Am. B*, **29**, 625 (2012)

- [32] **A. Moradi**, "Transverse magnetic wave propagation along flat biological membranes", [Optik, **123**, 1343 \(2012\)](#)
- [33] **A. Moradi**, "Geometrical tunability of plasmon excitations of double concentric metallic nanotubes", [Phys. Plasmas, **19**, 062102 \(2012\)](#)
- [34] **A. Moradi**, "Surface plasmon-polariton modes of metallic single-walled carbon nanotubes", [Photon Nanostruct: Fundam Appl, **11**, 85 \(2013\)](#)
- [35] **A. Moradi**, "Fast electron beam-plasma interaction in single-walled carbon nanotubes", [Appl. Phys. B, **111**, 127 \(2013\)](#)
- [36] **A. Moradi**, "Scattering by an array of parallel metallic carbon nanotubes", [Chin. Phys. B, **22**, 064201 \(2013\)](#)
- [37] **A. Moradi**, "A theoretical model to explain the mechanism of electromagnetic wave propagation along cylindrical micelles", [Commun. Theor. Phys, **60**, 136 \(2013\)](#)
- [38] **A. Moradi**, "Coupled surface plasmon-polariton modes of metallic single-walled carbon nanotubes", [Plasmonics, **8**, 1509 \(2013\)](#)
- [39] **A. Moradi**, "Light conduction of metallic two-walled carbon nanotubes", [Appl. Phys. A, **113**, 97 \(2013\)](#)
- [40] **A. Moradi**, "Plasmon-optical phonon hybridization in polar semiconductor nano-wires", [Semicond. Sci. Technol. **28**, 125005 \(2013\)](#)
- [41] **A. Moradi**, "Plasmonic waves of a semi-infinite random nanocomposite", [Phys. Plasmas **20**, 104507 \(2013\)](#)
- [42] **A. Moradi**, "Extinction properties of single-walled carbon nanotubes: Two-fluid model", [Phys. Plasmas, **21**, 032106 \(2014\)](#)
- [43] **A. Moradi** and E. Ebrahimi, "Plasmon spectra of cylindrical nano-structures including nonlocal effects", [Plasmonics, **9**, 209 \(2014\)](#)
- [44] **A. Moradi**, "Plasmonic modes and extinction properties of a random nanocomposite cylinder", [Phys. Plasmas, **21**, 042112 \(2014\)](#)
- [45] **A. Moradi**, "Extinction properties of an isolated C60 molecule", [Solid State Commun, **192**, 24 \(2014\)](#)
- [46] **A. Moradi**, "Multipole plasmon excitations of C60 dimers", [J. Chem. Phys. **141**, 024111 \(2014\)](#)
- [47] **A. Moradi**, "Surface plasmon modes of a nanoegg above a substrate", [J. Chem. Phys. **141**, 124121 \(2014\)](#)

- [48] **A. Moradi**, “Electromagnetic wave propagation in a random distribution of C60 molecules”, *Phys. Plasmas* **21**, 104508 (2014)
- [49] **A. Moradi**, “Surface plasmon oscillations on a quantum plasma half-space”, *Phys. Plasmas* **22**, 014501 (2015)
- [50] **A. Moradi**, “Quantum nonlocal effects on optical properties of spherical nanoparticles”, *Phys. Plasmas* **22**, 022119 (2015)
- [51] **A. Moradi**, “Quantum effects on propagation of bulk and surface waves in a thin quantum plasma film”, *Phys. Lett. A* **379**, 1139 (2015)
- [52] **A. Moradi**, “Plasmon modes of metallic nanowires including quantum nonlocal effects”, *Phys. Plasmas* **22**, 032112 (2015)
- [53] **A. Moradi**, “Plasmon modes of spherical nanoparticles: The effects of quantum nonlocality”, *Surf. Sci.* **637**, 53 (2015)
- [54] **A. Moradi**, “Maxwell-Garnett effective medium theory: Quantum nonlocal effects”, *Phys. Plasmas* **22**, 042105 (2015)
- [55] **A. Moradi**, “Infrared absorption spectra of a spatially dispersive polar semiconductor nanowire”, *Solid State Commun.* **212**, 10 (2015)
- [56] **A. Moradi**, “Quantum ion-acoustic wave oscillations in metallic nanowires”, *Phys. Plasmas*, **22**, 054502 (2015)
- [57] **A. Moradi**, “Quantum ion-acoustic wave oscillations on a quantum plasma half-space”, *Phys. Scr.* **90**, 085601 (2015)
- [58] **A. Moradi**, “Plasmonic waves of random metal-dielectric nanocomposite films”, *Photon Nanostruct: Fundam Appl* **15**, 41 (2015)
- [59] **A. Moradi**, “Plasmon hybridization in a symmetry-broken metallic nanotube above a substrate”, *Plasmonics* **10**, 999 (2015)
- [60] **A. Moradi**, “Extinction properties of metallic nanowires: Quantum diffraction and retardation effects”, *Phys. Lett. A* **379**, 2379 (2015)
- [61] **A. Moradi**, “Optical properties of random metal-dielectric nanocomposite films: Nanoparticle size effects”, *Phys. Scr.* **90**, 095803 (2015)
- [62] **A. Moradi**, “Quantum nonlocal polarizability of metallic nanowires”, *Plasmonics* **10**, 1225 (2015)

- [63] **A. Moradi**, “Spatial nonlocality in the infrared absorption spectra of polar semiconductor nanospheres”, *Semicond. Sci. Technol.* **30**, 115003 (2015)
- [64] **A. Moradi**, “Comment on: A theoretical model to explain the mechanism of light wave propagation through non-metallic nanowires”, *Opt. Commun* **357**, 193 (2015)
- [65] **A. Moradi**, “Dispersion properties of high- and low-frequency electrostatic oscillations of plasma spheres: Application to the metallic nanoparticles”, *Commun. Theor. Phys* **64**, 571 (2015)
- [66] **A. Moradi**, H. R. Zangeneh and F. K. Moghadam, “Effective permittivity of single-walled carbon nanotube composites: Two-fluid model”, *Phys. Plasmas* **22**, 122104 (2015)
- [67] **A. Moradi**, “Electrostatic surface waves on a magnetized quantum plasma half-space”, *Phys. Plasmas* **23**, 034501 (2016)
- [68] **A. Moradi**, “Quantum nonlocal polarizability of spherical metal nanoparticles”, *Int. J. Mod. Phys. B* **30**, 1650048 (2016)
- [69] **A. Moradi**, “Comment on: Propagation of surface waves on a semi-bounded quantum magnetized collisional plasma”, *Phys. Plasmas* **23**, 044701 (2016)
- [70] **A. Moradi**, “Effective medium theory for a system of C60 molecules”, *Phys. Plasmas* **23**, 062120 (2016)
- [71] **A. Moradi**, “Comment on: Propagation of a TE surface mode in a relativistic electron beam–quantum plasma system”, *Phys. Lett. A* **380**, 2580 (2016)
- [72] **A. Moradi**, “Surface polaritons of a metal-insulator-metal curved slab”, *Superlattices and Microstructures* **97**, 335 (2016)
- [73] **A. Moradi**, “Comment on: Surface electromagnetic wave equations in a warm magnetized quantum plasma”, *Phys. Plasmas* **23**, 074701 (2016)
- [74] **A. Moradi**, “Low-frequency surface waves on semi-bounded magnetized quantum plasma”, *Phys. Plasmas* **23**, 084501 (2016)
- [75] **A. Moradi**, “High-frequency waves in a random distribution of metallic nanoparticles in an external magnetic field”, *Zeitschrift für Naturforschung A* **71**, 849 (2016)
- [76] **A. Moradi**, “Collective excitations of spherical semiconductor nanoparticles”, *Physica Scripta* **91**, 105802 (2016)
- [77] **A. Moradi**, “Surface and bulk plasmons of electron-hole plasma in semiconductor nanowires”, *Phys. Plasmas* **23**, 114503 (2016)
- [78] **A. Moradi**, “Energy density and energy flow of magnetoplasmonic waves on graphene”, *Solid State Commun* **253**, 63 (2017)

- [79] **A. Moradi**, “Electrostatic surface waves on semi-bounded quantum electron-hole semiconductor plasmas”, *Commun. Theor. Phys.* **67**, 317 (2017)
- [80] **A. Moradi**, “Energy density and energy flow of plasmonic waves in bilayer graphene”, *Opt. Commun* **394**, 135 (2017)
- [81] **A. Moradi**, “Comment on: Effects of electron exchange-correlation potential on electrostatic oscillations in single-walled carbon nanotubes”, *J. Appl. Phys* **121**, 176101 (2017)
- [82] **A. Moradi**, “Bohm potential and inequality of group and energy transport velocities of plasmonic waves on metal-insulator waveguides”, *Phys. Plasmas* **24**, 072104 (2017)
- [83] **A. Moradi**, “Damping properties of plasmonic waves on graphene”, *Phys. Plasmas* **24**, 072114 (2017)
- [84] **A. Moradi**, “Theory of energy and power flow of plasmonic waves on single-walled carbon nanotubes”, *J. Appl. Phys* **122**, 133103 (2017)
- [85] **A. Moradi**, “Theory of Goos-Hanchen shift in graphene: Energy-flux method”, *EPL (Europhysics Letters)* **120**, 67002 (2017)
- [86] **A. Moradi**, “Energy density and energy flow of surface waves in a strongly magnetized graphene”, *J. Appl. Phys* **123**, 043103 (2018)
- [87] **A. Moradi**, “Electromagnetic energy within an isolated C60 molecule”, *Optik* **164**, 100 (2018)
- [88] **A. Moradi**, “Energy behaviour of extraordinary waves in magnetized quantum plasmas”, *Phys. Plasmas* **25**, 052123 (2018)
- [89] **A. Moradi**, “Plasmonic waves of graphene on a conducting substrate”, *J. Mod. Opt.* **66**, 353 (2019)
- [90] **A. Moradi**, “Propagation of electrostatic energy through a quantum plasma”, *Contributions to Plasma Physics* (2019) In Press

JOURNAL PUBLICATIONS (ISC):

- [1] **A. Moradi**, “Electrical energy density and dissipation in graphene: Equivalent-circuit method”, *Tabriz Journal of Electrical Engineering* (2019) In Press

RECENT CONFERENCES:

- [1] **A. Moradi** and H. Khosravi, "Magnetoplasma wave propagation in single-walled carbon nanotubes"
 Proceedings of the 2nd Conference on Nanostructures (NS2008), March 11-14, 2008, Kish University, Kish Island, I.R. Iran

- [2] **A. Moradi**, "Plasmon excitations in nanostructures: Wires, capillaries and tubes"
Proceedings of the 3rd Conference on Nanostructures (NS2010), March 10-12, 2010, Kish University, Kish Island, I.R. Iran
- [3] **A. Moradi**, "Quantum ion-acoustic wave oscillations in two-walled carbon nanotubes"
Proceedings of the 3rd Conference on Nanostructures (NS2010), March 10-12, 2010, Kish University, Kish Island, I.R. Iran
- [4] **A. Moradi** and M. H. Teimourpour, "Microwave shielding of magnetized hydrogen plasma in carbon nanotubes"
Proceedings of the WASET 2011: World Academy of Science, Engineering and Technology, January 25-27, 2011, Dubai, UAE
- [5] **A. Moradi**, "Transverse magnetic wave propagation in a bundle of carbon nanotubes"
Proceedings of the advances in applied physics & materials science congress, May 12-15, 2011, Istanbul Kultur University, Kemer, Antalya, Turkey
- [6] **A. Moradi**, "Plasmon Excitations of the Coaxial Metallic Nanotubes"
Proceedings of the 4th Conference on Nanostructures (NS2012), March 12-14, 2012, Kish University, Kish Island, I.R. Iran
- [7] **A. Moradi**, "Surface Plasmon-Optical Phonon Modes in Polar Semiconductor Nanocavities"
Proceedings of the 5th Conference on Nanostructures (NS2014), March 6-9, 2014, Kish University, Kish Island, I.R. Iran
- [8] **A. Moradi**, "Plasmonic waves of random metal-dielectric thin films" Proceedings of the Science and Applications of Thin Films, Conference & Exhibition (SATF 2014), September 15-19, 2014, Izmir, Turkey
- [9] **A. Moradi**, "Propagation of TE and TM surface plasmon polariton modes in cylindrical metal-insulator-metal structures" Proceedings of the 9th International Physics Conference of the Balkan Physical Union–BPU9, August 24-27, 2015, Istanbul University, Istanbul, Turkey
- [10] **A. Moradi**, "Plasmonic modes of symmetry-broken metallic nanotube dimers" Proceedings of the 9th International Physics Conference of the Balkan Physical Union–BPU9, August 24-27, 2015, Istanbul University, Istanbul, Turkey
- [11] **A. Moradi**, "Surface plasmon modes in metallic nanowire dimers" Proceedings of the 6th International Conference on Nanostructures (ICNS6), March 7-10, 2016, Kish University, Kish Island, I.R. Iran

Honors:

Distinguished Researcher for Year **2009** in Kermanshah University of Technology
Distinguished Researcher for Year **2010** in Kermanshah University of Technology
Distinguished Researcher of the Professor Shamsipour Festival in Iran, **2010**
Distinguished Researcher for Year **2011** in Kermanshah University of Technology
Distinguished Researcher for Year **2012** in Kermanshah University of Technology
Distinguished Researcher for Year **2013** in Kermanshah University of Technology
Distinguished Researcher for Year **2014** in Kermanshah University of Technology

Distinguished Researcher for Year **2015** in Kermanshah University of Technology
Distinguished Researcher for Year **2016** in Kermanshah University of Technology
Distinguished Researcher for Year **2017** in Kermanshah University of Technology

SCIENTIFIC POSITIONS:

Referee of [EPL](#)
Referee of [Carbon](#)
Referee of [Physica E](#)
Referee of [Sensor Letters](#)
Referee of [ACS Photonics](#)
Referee of [Physics Letters A](#)
Referee of [Physics of Plasmas](#)
Referee of [Iranian Physical Society](#)
Referee of [Optics Communications](#)
Referee of [Scientia Nanotechnology](#)
Referee of [Journal of Modern Optics](#)
Referee of [Scientia Nanotechnology](#)
Referee of [Optics & Laser Technology](#)
Referee of [Brazilian Journal of Physics](#)
Referee of [Solid State Communications](#)
Referee of [Canadian Journal of Physics](#)
Referee of [Superlattice and Microstructure](#)
Referee of [The Journal of Physical Chemistry](#)
Referee of [NANO: Brief Reports and Reviews](#)
Referee of [Communications in Theoretical Physics](#)
Referee of [Recent Patents on Electrical Engineering](#)
Referee of [International Journal of Modern Physics B](#)
Referee of [Journal of Computational and Applied Mathematics](#)
Referee of [Optoelectronics and Advanced Materials-Rapid Communications](#)

SCIENTIFIC PROJECTS:

Investigation of collective excitations in single-walled carbon nanotubes, [Islamic Azad University \(Kermanshah Branch\)](#), Kermanshah, Iran, 2007

Investigation of carbon nanotubes as optical nano waveguides, [Kermanshah University of Technology](#), Kermanshah, Iran, 2010

Investigation of optical scattering by metallic carbon nanotubes, [Islamic Azad University \(Kermanshah Branch\)](#), Kermanshah, Iran, 2010-2011

POSTGRADUATED STUDENTS:

M.Sc.:

1. Elham Ebrahimi, thesis title: *Bulk and surface plasmon excitations in metallic nanowires*, Department of Physics, Science and Research branch, Islamic Azad University, Kermanshah, Iran, (2011-2013, Graduated)
2. Shervin Firozfar, thesis title: *Surface polaritons in left-handed materials of different shapes and symmetries*, Department of Physics, Science and Research branch, Islamic Azad University, Kermanshah, Iran, (2011-2013, Graduated)
3. Fatemeh Habibi, thesis title: *Investigation of optical properties of non-homogeneous hydrogen plasma thin film in the presence of carbon nanotubes*, Department of Physics, Science and Research branch, Islamic Azad University, Kermanshah, Iran, (2011-2014, Graduated)

Ph.D.:

1. Firoozeh Karimi Moghadam, thesis title: *Investigation of optical properties of single-walled carbon nanotube composites and C60 molecule composites*, Department of Photonics, Faculty of Physics, University of Kashan, Kashan, Iran, (2015-2018) -Supervisor II