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Education Information

Post Doctorate, Texas A&M University, Institute For Quantum Science And Engineering , United States Of America 2015 - 2015

Post Doctorate, University of Arizona, College Of Optical Sciences, United States Of America 2010 - 2011

Post Doctorate, Koc University, Faculty Of Science, Department Of Physics, Turkey 2009 - 2010

Doctorate, Ihsan Dogramaci Bilkent University, Faculty Of Science, Department Of Physics, Turkey 2003 - 2009

Undergraduate, Ihsan Dogramaci Bilkent University, Faculty Of Science, Department Of Physics, Turkey 1997 - 2003

Foreign Languages

English, C2 Mastery

Dissertations

Doctorate, Quantum entanglement and light propagation through Bose-Einstein condensate (BEC), Ihsan Dogramaci Bilkent University, Institute Of Engineering And Natural Sciences, 2009

Research Areas

Physics, Atomic and Molecular Physics, Atomic Spectra and Photon Interactions, Intensive Article 2: Electronic Structure, Electric, Magnetic and Optical Properties, Optical Properties, Spectroscopy of Matter, Natural Sciences

Academic Titles / Tasks

Associate Professor, 2013 - Continues

Courses

NANOYAPILARDA IŞIK-MADDE ETKİLEŞİMİNİN SİMÜLASYONU, Undergraduate, 2017 - 2018

KUANTUM OPTİK, Doctorate, 2016 - 2017, 2017 - 2018

Nanoyapılarda Işık-Madde Etkileşiminin S m]lasyonu, Doctorate, 2016 - 2017

Kuantum Optikte Hesaplama Yöntemleri, Doctorate, 2016 - 2017

Advising Theses

Taşgın M. E. , Bek A., Enhancement of plasmonic nonlinear conversion and polarization lifetime via fano resonances, Doctorate, B.CAN(Student), 2017

Taşgın M. E. , Bek A., Comparative study on surface enhanced raman scattering activity of various silver nanostructures, Postgraduate, Ö.DEMİRTAŞ(Student), 2017

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Fano enhancement of unlocalized nonlinear optical processes**
Gunay M., Cicek A., Korozlu N., BEK A., TAŞGIN M. E.
PHYSICAL REVIEW B, vol.104, no.23, 2021 (Journal Indexed in SCI)
- II. **Actively tunable photonic crystal-based switch via plasmon-analog of index enhancement**
YÜCE E., Artvin Z., ŞAHİN R., BEK A., TAŞGIN M. E.
APPLIED PHYSICS LETTERS, vol.119, no.21, 2021 (Journal Indexed in SCI)
- III. **Single-molecule-resolution ultrafast near-field optical microscopy via plasmon lifetime extension**
OVALI R. V. , ŞAHİN R., BEK A., TAŞGIN M. E.
Applied Physics Letters, vol.118, no.24, 2021 (Journal Indexed in SCI)
- IV. **Negative superluminal velocity and violation of Kramers-Kronig relations in causal optical systems**
TAŞGIN M. E.
PHYSICAL REVIEW A, vol.103, no.1, 2021 (Journal Indexed in SCI)
- V. **Fano-control of down-conversion in a nonlinear crystal via plasmonic-quantum emitter hybrid structures**
Artvin Z., Gunay M., BEK A., TAŞGIN M. E.
JOURNAL OF THE OPTICAL SOCIETY OF AMERICA B-OPTICAL PHYSICS, vol.37, no.12, pp.3769-3776, 2020 (Journal Indexed in SCI)
- VI. **Single-mode nonclassicality criteria via Holstein-Primakoff transformation**
TAŞGIN M. E.
JOURNAL OF PHYSICS B-ATOMIC MOLECULAR AND OPTICAL PHYSICS, vol.53, no.24, 2020 (Journal Indexed in SCI)
- VII. **Measuring nonclassicality of single-mode systems**
TAŞGIN M. E.
JOURNAL OF PHYSICS B-ATOMIC MOLECULAR AND OPTICAL PHYSICS, vol.53, no.17, 2020 (Journal Indexed in SCI)
- VIII. **Continuously-tunable Cherenkov-radiation-based detectors via plasmon index control**
Gunay M., Chuang Y., TAŞGIN M. E.
NANOPHOTONICS, vol.9, no.6, pp.1479-1489, 2020 (Journal Indexed in SCI)
- IX. **Nonclassicality and entanglement for wave packets**
TAŞGIN M. E. , Gunay M., Zubairy M. S.
PHYSICAL REVIEW A, vol.101, no.6, 2020 (Journal Indexed in SCI)
- X. **Quantum emitter interacting with graphene coating in the strong-coupling regime**
Gunay M., Karanikolas V., ŞAHİN R., Ovali R. V. , BEK A., TAŞGIN M. E.
PHYSICAL REVIEW B, vol.101, no.16, 2020 (Journal Indexed in SCI)
- XI. **Controlling steady-state second harmonic signal via linear and nonlinear Fano resonances**
Guenay M., Artvin Z., BEK A., TAŞGIN M. E.
JOURNAL OF MODERN OPTICS, vol.67, no.1, pp.26-34, 2020 (Journal Indexed in SCI)
- XII. **Plasmon lifetime enhancement in a bright-dark mode coupled system**
Yildiz B. C. , BEK A., TAŞGIN M. E.
PHYSICAL REVIEW B, vol.101, no.3, 2020 (Journal Indexed in SCI)
- XIII. **Quantifications for multimode entanglement**
TAŞGIN M. E. , Zubairy M. S.
PHYSICAL REVIEW A, vol.101, no.1, 2020 (Journal Indexed in SCI)

- XIV. **Entanglement criteria for two strongly interacting ensembles**
Gunay M., Mustecaplioglu O. E. , TAŞGIN M. E.
PHYSICAL REVIEW A, vol.100, no.6, 2019 (Journal Indexed in SCI)
- XV. **Silent enhancement of SERS signa without increasing hot spot intensities**
Postaci S., Yildiz B. C. , BEK A., TAŞGIN M. E.
NANOPHOTONICS, vol.7, no.10, pp.1687-1695, 2018 (Journal Indexed in SCI)
- XVI. **Many-Particle Entanglement Criterion for Superradiantlike States**
TAŞGIN M. E.
PHYSICAL REVIEW LETTERS, vol.119, no.3, 2017 (Journal Indexed in SCI)
- XVII. **Collectively induced many-vortices topology via rotatory Dicke quantum phase transition**
DAS P., TAŞGIN M. E. , Mustecaplioglu O. E.
NEW JOURNAL OF PHYSICS, vol.18, 2016 (Journal Indexed in SCI)
- XVIII. **Fluorescence excitation by enhanced plasmon upconversion under continuous wave illumination**
TAŞGIN M. E. , Salakhutdinov I., Kendziora D., Abak M. K. , Turkpence D., Piantanida L., Fruk L., Lazzarino M., BEK A.
PHOTONICS AND NANOSTRUCTURES-FUNDAMENTALS AND APPLICATIONS, vol.21, pp.32-43, 2016 (Journal Indexed in SCI)
- XIX. **Enhancement of four-wave mixing via interference of multiple plasmonic conversion paths**
SINGH S. K. , Abak M. K. , TAŞGIN M. E.
PHYSICAL REVIEW B, vol.93, no.3, 2016 (Journal Indexed in SCI)
- XX. **Enhanced second harmonic generation from coupled asymmetric plasmonic metal nanostructures**
Yildiz B. C. , TAŞGIN M. E. , Abak M. K. , Coskun S., ÜNALAN H. E. , BEK A.
JOURNAL OF OPTICS, vol.17, no.12, 2015 (Journal Indexed in SCI)
- XXI. **Conservation relation of nonclassicality and entanglement for Gaussian states in a beam splitter**
GE W., Tasgin M. E. , ZUBAIRY M. S.
PHYSICAL REVIEW A, vol.92, no.5, 2015 (Journal Indexed in SCI)
- XXII. **Engineering nonlinear response of nanomaterials using Fano resonances**
TURKPENCE D., Akguc G. B. , BEK A., TAŞGIN M. E.
JOURNAL OF OPTICS, vol.16, no.10, 2014 (Journal Indexed in SCI)
- XXIII. **Metal nanoparticle plasmons operating within a quantum lifetime**
Tasgin M. E.
NANOSCALE, vol.5, no.18, pp.8616-8624, 2013 (Journal Indexed in SCI)
- XXIV. **Testing the reliability of a velocity definition in a dispersive medium**
Tasgin M. E.
PHYSICAL REVIEW A, vol.86, no.3, 2012 (Journal Indexed in SCI)
- XXV. **Creation of a vortex in a Bose-Einstein condensate by superradiant scattering**
Tasgin M. E. , Mustecaplioglu O. E. , You L.
PHYSICAL REVIEW A, vol.84, no.6, 2011 (Journal Indexed in SCI)
- XXVI. **Quantum-measurement backaction from a Bose-Einstein condensate coupled to a mechanical oscillator**
Steinke S. K. , Singh S., Tasgin M. E. , Meystre P., Schwab K. C. , Vengalattore M.
PHYSICAL REVIEW A, vol.84, no.2, 2011 (Journal Indexed in SCI)
- XXVII. **Spin squeezing with coherent light via entanglement swapping**
Tasgin M. E. , MEYSTRE P.
PHYSICAL REVIEW A, vol.83, no.5, 2011 (Journal Indexed in SCI)
- XXVIII. **Quantum correlations among superradiant Bose-Einstein condensate atoms**
Tasgin M. E. , Oztop B., Oktel M. O. , Mustecaplioglu O. E.
OPTICS AND SPECTROSCOPY, vol.108, no.3, pp.433-437, 2010 (Journal Indexed in SCI)
- XXIX. **Quantum entanglement via superradiance of a Bose-Einstein condensate**
Tasgin M. E. , Oktel M. O. , YOU L., MUSTECAPLIOGLU O. E.
LASER PHYSICS, vol.20, no.3, pp.700-708, 2010 (Journal Indexed in SCI)
- XXX. **Quantum correlated light pulses from sequential superradiance of a condensate**

Tasgin M. E. , Oktel M. O. , YOU L., Muestecaplioglu O. E.

PHYSICAL REVIEW A, vol.79, no.5, 2009 (Journal Indexed in SCI)

XXXI. Vortex lattice of a Bose-Einstein condensate as a photonic band gap material

Tasgin M. E. , Muestecaplioglu O. E. , Oktel M. O.

LASER PHYSICS, vol.19, no.4, pp.647-654, 2009 (Journal Indexed in SCI)

XXXII. Photonic band gap in the triangular lattice of Bose-Einstein-condensate vortices

Tasgin M. E. , Muestecaplioglu O. E. , Oktel M. O.

PHYSICAL REVIEW A, vol.75, no.6, 2007 (Journal Indexed in SCI)

XXXIII. Vortices in trapped boson-fermion mixtures

Tasgin M. E. , SUBASI A., OKTEL M., TANATAR B.

JOURNAL OF LOW TEMPERATURE PHYSICS, vol.138, pp.611-616, 2005 (Journal Indexed in SCI)

Books & Book Chapters

I. Fano Resonances in the Linear and Nonlinear Plasmonic Response

TAŞGIN M. E. , BEK A., Postaci S.

in: Fano Resonances in Optics and Microwaves, Kamenetskii, Eugene Sadreev, Almas Miroshnichenko, Andrey, Editor, Springer, pp.1-31, 2018

Refereed Congress / Symposium Publications in Proceedings

I. Silent enhancement of SERS signal without increasing the hot spot intensity

TAŞGIN M. E.

The 10th International Conference on Metamaterials, Photonic Crystals and Plasmonics, Lizbon, Portugal, 23 - 26 July 2019

II. Multi-particle entanglement in superradiance

TAŞGIN M. E.

48. PQE (Physics of Quantum Electronics) Conferences, UTAH/Salt Lake City, United States Of America, 7 - 12 January 2018

III. Explicit demonstration of how path interference can enhance plasmonic nonlinearity

TAŞGIN M. E.

META2017, the 8th International Conference on Metamaterials, Photonic Crystals and Plasmonics, Incheon-Seul, South Korea, 25 - 28 July 2017

IV. Many-particle entanglement for superradiant-like states

TAŞGIN M. E.

Technical Univ of Dortmund – Comsats Institute for Information Technology, International mini-School on Quantum and Ultrafast Optics: Theory and Experiment, Islamabad, Pakistan, 4 - 06 October 2017

V. Explicit demonstration of how nonlinearity enhancement emerges in Fano resonances

TAŞGIN M. E.

Turkey-Korea International Workshop in Electronics and Telecommunication, Daejeon, South Korea, 31 July - 01 August 2017

VI. Enhancement of nonlinear plasmonic processes via Fano resonances

TAŞGIN M. E.

24. İstatistiksel Fizik Günleri (İFG 24), İzmir, Turkey, 29 June - 01 July 2017

VII. Manyparticle entanglement for superradiant-like states

TAŞGIN M. E.

Quantum Nanophotonics, Benasque, Spain, 26 February - 03 March 2017

VIII. Many-particle entanglement criterion for superradiant-like states

TAŞGIN M. E.

KOBİT (Kuantum Optiği ve Bilişim Tolantısı), İzmir, Turkey, 2 - 03 February 2017

- IX. **Enhanced second harmonic generation from coupled asymmetric plasmonic metal nanostructures**
YILDIZ KARAKUL B. C. , TAŞGIN M. E. , abak m. k. , coşkun ş., ÜNALAN H. E. , BEK A.
KOBİT1, Turkey, 2 - 03 February 2017
- X. **Fano Enhancement of Raman Conversion**
saatçi s., YILDIZ KARAKUL B. C. , BEK A., TAŞGIN M. E.
KOBİT1, Turkey, 2 - 03 February 2017
- XI. **Explicit demonstration of how path interference effect can enhance plasmonic nonlinearity**
TÜRKPENÇE D., Akgüç G. B. , BEK A., TAŞGIN M. E.
COST Action MP1403 Nanoscale Quantum Optics, Attard, Malta, 15 - 18 November 2015
- XII. **Dynamical instability of a two component Bose-Einstein Condensate in an optical lattice**
Taşgin M. E. , Oktel M. O.
12th Central European Workshop on Quantum Optics, Ankara, Turkey, 6 - 09 June 2005, vol.36, pp.200-202

Supported Projects

TAŞGIN M. E. , EU Supported Other Project, Uzay Uygulamaları İçin Kuantum Yakıtlar, 2017 - Continues
Taşgin M. E. , TUBITAK Project, Dört-Dalga Karışması Prosesinin Tamamen-Plazmonik Fano Rezonans ile Güçlendirilerek Multi-Frekans Kuantum-Dolaşıklaştırıcı Yapılması, 2017 - 2021
TAŞGIN M. E. , TUBITAK Project, Doğrusal Olmayan Optik Özellikleri Fano Rezonansı ile Güçlendirerek Nano Boyutlu Kuantum Dolaşıklaştırıcı Yapılması, 2014 - 2016
TAŞGIN M. E. , TUBITAK Project, Bose Einstein Yoğuşuğunda Süperışma ile Vorteks Örgüsü Faz Geçişi İndüklenmesi, 2013 - 2015

Scientific Refereeing

Journal of the Optical Society of America B, SCI Journal, March 2018
Physical Review Letters, SCI Journal, January 2017
Physical Review A, SCI Journal, April 2016

Tasks In Event Organizations

Taşgin M. E. , 24. Yoğun Madde Fiziği Ankara Toplantısı, Workshop Organization, Ankara, Turkey, Aralık 2018
Taşgin M. E. , KOBİT 2 Kuantum Optik ve Bilişimi Toplantısı , Workshop Organization, İstanbul, Turkey, Şubat 2018
Taşgin M. E. , 23. Yoğun Madde Fiziği Ankara Toplantısı, Workshop Organization, Ankara, Turkey, Aralık 2017
Taşgin M. E. , KOBİT 1 (Kuantum Optik ve Bilişimi Toplantısı), Workshop Organization, İzmir, Turkey, Şubat 2017
Taşgin M. E. , 22. Yoğun Madde Fiziği Ankara Toplantısı, Workshop Organization, Ankara, Turkey, Aralık 2016
Taşgin M. E. , KOBİT 0 Kuantum Optik ve Bilişimi (İlk) Toplantısı, Workshop Organization, Ankara, Turkey, Mart 2016
Taşgin M. E. , 21. Yoğun Madde Fiziği Ankara Toplantısı, Workshop Organization, Ankara, Turkey, Aralık 2015
Taşgin M. E. , 20. Yoğun Madde Fiziği Ankara Toplantısı, Workshop Organization, Ankara, Turkey, Aralık 2014

Edit Congress and Symposium Activities

META-2019, 10. International Conference on Metamaterials, Photonic Crystals and Plasmonics, Invited Speaker, Lisbon, Portugal, 2019
48. Winter Colloquium on the Physics of Quantum Electronics, Invited Speaker, Utah, United States Of America, 2018
META-2017, 8. International Conference on Metamaterials, Photonic Crystals and Plasmonics, Invited Speaker, Incheon, South Korea, 2017

24. İstatistik Fizik Günleri, Invited Speaker, İzmir, Turkey, 2017
KOBİT (Kuantum Optik ve Bilişimi Toplantısı) 1, Invited Speaker, İzmir, Turkey, 2017
20. İstatistik Fizik Günleri, Invited Speaker, Kayseri, Turkey, 2013

Citations

Total Citations (WOS):167
h-index (WOS):8

Invited Talks

- 2021 TAMU-Baylor-Casper Summer School on Quantum Physics and Biophysics, Conference, Texas A&M University and Casper College, United States Of America, July 2021
Quantum Entanglement and uncontrolled Superluminal source-potential communication, Seminar, Korean Institute for Advanced Studies, South Korea, June 2019
Unification of entanglement criteria and Bose-Einstein condensates, Seminar, National Center for Theoretical Sciences , Taiwan, May 2019
Silent enhancement of SERS signal without increasing hot spot intensities, Seminar, National Center for Theoretical Sciences , Taiwan, May 2019
Quantum Plasmonics for circumventing the limitations in SERS and SNOM, Seminar, Texas A&M University, United States Of America, February 2019
Kimya Bölümü / Silent enhancement of SERS signal without increasing hot spot intensities, Seminar, İhsan Doğramacı Bilkent Üniversitesi, Turkey, October 2018
Many-particle entanglement for superradiant states, Seminar, • Institute for Quantum Optics and Quantum Information- Austrian Academy of Sciences, Austria, April 2018
Many-particle entanglement for superradiant-like states, Seminar, Mini-School on Ultrafast Optics and Plasmonics / COMSATS Institute of Technology and Technical University of Dortmund, Pakistan, December 2017
Explicit demonstration of Fano resonances, Seminar, Mini-School on Ultrafast Optics and Plasmonics / COMSATS Institute of Technology and Technical University of Dortmund, Pakistan, December 2017
Fizik Bölümü / Quantum entanglement and Violation of Kramers-Kroning Relations, Seminar, İhsan Doğramacı Bilkent Üniversitesi, Turkey, November 2017
Quantum entanglement criteria and Quantum Plasmonics, Seminar, KIAS (Korean Institute of Advanced Study) , South Korea, August 2017
Enhancement of nonlinear response via path interference, Seminar, ETRI (Electronics and Telecommunications Research Institute), South Korea, July 2017
Kuantum Plazmonik Teknolojileri, Workshop, TÜBİTAK BİLGEM / Horizon 2020: Kuantum Teknolojileri, Turkey, November 2016
Nanoscale Quantum Optics-ESR , Workshop, Malta Üniversitesi (University of Malta), Malta, November 2015

Awards

- Taşgın M. E. , Parlar Araştırma Teşvik Ödülü, Odtü Parlar Vakfı, November 2018
Taşgın M. E. , TÜBA Üstün Başarılı Genç Bilim İnsanı Ödülleri Programı, Türkiye Bilimler Akademisi, October 2017