

Prof. ALPAN BEK

Personal Information

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International Researcher IDs

ScholarID: RCvIJDkAAAAJ

ORCID: 0000-0002-0190-7945

Publons / Web Of Science ResearcherID: A-4847-2010

ScopusID: 6602813700

Yoksis Researcher ID: 182957

Education Information

Doctorate, Ecole Polytechnique Federale De Lausanne, Temel Bilimler, Switzerland 2000 - 2004

Postgraduate, Ihsan Dogramaci Bilkent University, Institute Of Engineering And Natural Sciences, Fizik (YI) (Tezli), Turkey 1996 - 1998

Undergraduate, Ihsan Dogramaci Bilkent University, Faculty Of Science, Department Of Physics, Turkey 1992 - 1995

Foreign Languages

German, C1 Advanced

English, C1 Advanced

Dissertations

Doctorate, Apertureless SNOM: A New Tool for Nano-Optics, Ecole Polytechnique Federale De Lausanne, Temel Bilimler, 2004

Postgraduate, Low loss optical waveguides and polarization splitters wit oxidized ALxGa1-xAs layers, Bilkent Üniversitesi, Mühendislik Ve Fen Bilimleri Enstitüsü, Fizik (YI) (Tezli), 1998

Research Areas

Physics, Interdisciplinary Physics and Related Science and Technology Areas, Biophysics and Medical Physics, Electromagnetism, Acoustics, Heat Transfer, Classical Mechanics and Fluid Dynamics, Optics, Intensive Article 2: Electronic Structure, Electric, Magnetic and Optical Properties, Optical Properties, Spectroscopy of Matter, Natural Sciences

Academic Titles / Tasks

Professor, Middle East Technical University, Faculty of Arts and Sciences, Department of Physics, 2022 - Continues

Associate Professor, Middle East Technical University, Faculty of Arts and Sciences, Department of Physics, 2015 - 2022
Assistant Professor, Middle East Technical University, Faculty of Arts and Sciences, Department of Physics, 2011 - 2015
Research Assistant, Cluster In Biomedicine (Cbm Scrl), Lanada, 2007 - 2010
Research Assistant, Ludwig-Maximilians-Universitaet München, Fizik, Fizik, 2005 - 2007
Research Assistant, Max-Planck Institute For Solid State Research (Mpı-Fkf), Nanoscale Science, 1999 - 2004
Research Assistant, Ihsan Dogramaci Bilkent University, Faculty Of Science, Department Of Physics, 1996 - 1999

Academic and Administrative Experience

Academic Performance D. Board Member, Middle East Technical University, Presidency Office, Presidency Office, 2021 - Continues
Head of Department, Middle East Technical University, Graduate School of Natural and Applied Sciences, Neuroscience and Neurotechnology, 2020 - Continues
Uygulama ve Araştırma Merkezi Yönetim Kurulu Üyesi, Middle East Technical University, Presidency Office, Merkezi Laboratuvar Araştırma ve Uygulama Merkezi, 2018 - Continues
Academic Board Member, Middle East Technical University, Graduate School of Natural and Applied Sciences, 2016 - Continues
Academic Board Member, Middle East Technical University, Graduate School of Natural and Applied Sciences, Micro and Nanotechnology, 2012 - Continues
Academic Board Member, Middle East Technical University, Faculty of Arts and Sciences, Department of Physics, 2011 - Continues
Uygulama ve Araştırma Merkezi Yönetim Kurulu Üyesi, Middle East Technical University, Presidency Office, 2017 - 2021
Academic Performance D. Board Member, Middle East Technical University, Presidency Office, Presidency Office, 2019 - 2020
Rektörlük Akademik Teşvik Değerlendirme Komisyonu Üyesi, Middle East Technical University, Presidency Office, Presidency Office, 2018 - 2020
Bölüm Stratejik Plan Komisyonu Başkanı, Middle East Technical University, Faculty of Arts and Sciences, Department of Physics, 2017 - 2020
Bölüm Başkan Danışmanı, Middle East Technical University, Faculty of Arts and Sciences, Department of Physics, 2017 - 2020
Uygulama ve Araştırma Merkezi Yönetim Kurulu Üyesi, Middle East Technical University, Presidency Office, 2015 - 2020
Rektörlük Stratejik Plan Komisyonu Üyesi, Middle East Technical University, Presidency Office, Presidency Office, 2016 - 2019

Courses

INTRODUCTION TO PHOTONICS AND OPTOELECTRONICS I, Undergraduate, 2018 - 2019
INTRODUCTION TO NANOOPTICS, Postgraduate, 2018 - 2019
SPECIAL PROBLEMS IN PHYSICS, Undergraduate, 2017 - 2018
INTRODUCTION TO PHOTONICS AND OPTOELECTRONICS II, Undergraduate, 2017 - 2018
INTRODUCTION TO NANOOPTICS, Postgraduate, 2015 - 2016

Advising Theses

Bek A., Fabrication of subsurface submicron photonic structures inside crystal silicon, Doctorate, B.KARAGÖZ(Student), 2024
Bek A., Uniform Sub-/Direct or Back Surface Laser Writing Of High And Low Spatial Frequency Surface Structures On Silicon And Its Application To Surface Enhanced Raman Spectroscopy, Doctorate, F.İDİKUT(Student), 2024

Ünalın H. E., Bek A., Infrared low observable material design, synthesis and characterization, Postgraduate, A.KESKİN(Student), 2023

Bek A., Çınar K., Crystallization of amorphous Ge thin films by nanosecond pulsed infrared laser, Postgraduate, C.KORKUT(Student), 2023

Bek A., Taşğın M. E., Numerical estimation of enhancement factor of silver nanowire filter foils as SERS substrates, Postgraduate, S.YÜKSEL(Student), 2023

Bek A., Surface enhanced raman spectroscopy of the plasmonic nanogratings obtained by laser induced periodic surface structuring, Postgraduate, S.NUR(Student), 2023

Bek A., Çolakođlu T., Ultra-low-level absorption measurement of ion assisted electron beam deposited optical thin films by photothermal common-path interferometry, Doctorate, Y.KASAP(Student), 2023

Bek A., Nalbant E., Development of cutting-edge SERS and TERS technologies for environmental challenges, Doctorate, Ö.DEMİRTAŞ(Student), 2023

Bek A., Taşğın M. E., Comparison of core-shell alloy plasmonic nanoparticles with 3 different models, Postgraduate, A.YILMAZ(Student), 2023

Bek A., Fine-tuning plasmonic response for plasmon-enhanced photonics, Doctorate, İ.MURAT(Student), 2023

Bek A., Kocaman S., Self-consistent rate equation modeling of bi-functional quantum cascade structures, Postgraduate, O.BERK(Student), 2023

Imer M. B., BEK A., IN-SITU DOPED FZO FILMS BY ALD FOR TCO APPLICATIONS, Postgraduate, M.TUNÇKANAT(Student), 2023

BEK A., SON Ç. D., Development of SERS-active silver nanowire filter foils for pathogen detection in fluids, Postgraduate, H.OĞUZ(Student), 2022

BEK A., Optical system design, integration and testing of a 2D scanning lidar, Postgraduate, K.CERİT(Student), 2022

BEK A., Fabrication and characterization of sers substrates via laser induced photochemical surface roughening of silicon, Postgraduate, A.AKBIYIK(Student), 2022

BEK A., SON Ç. D., The effect of topography-induced mechanotransduction on expression levels of focal adhesion-related genes in neuro-2A cells, Postgraduate, Ş.CULFA(Student), 2022

BEK A., Development and evaluation of laser processed light management interfaces for graphene/silicon Schottky solar cells, Doctorate, N.AVISHAN(Student), 2022

BEK A., Implementation of strong light-matter interaction for fabrication and light management of thin crystal silicon solar cells, Doctorate, M.ZOLFAGHARI(Student), 2021

BEK A., Fano control of plasmonic double-resonant systems, Doctorate, S.POSTACI(Student), 2021

BEK A., Ordered colloidal-mask applications in light management, Doctorate, S.SEYEDPOUR(Student), 2021

Bek A., Aslan Y., Dark current optimization designs for mesa and planar type processed short wavelength infrared photodetectors, Doctorate, M.HALİT(Student), 2021

BEK A., (In)GaN Çok Kuantum Kuyulu Işık Saçan Diyotlarda Atomik Tabaka Biriktirme ile Pasivasyonun Kaçak Akıma Etkileri, Postgraduate, H.MERT(Student), 2021

BEK A., Design, production and performance analysis of a multi-pass matrix optical system for trace spectroscopy, Postgraduate, T.ÖNDER(Student), 2021

Bek A., Son Ç. D., Behavior of neuro-2a cells on femtosecond laser structured silicon substrates, Postgraduate, S.MINGU(Student), 2020

Bek A., Pavlov I., Laser induced periodic surface structuring for surface enhanced Raman spectroscopy, Postgraduate, Z.TUĞÇE(Student), 2020

Kocaman S., BEK A., Barrier engineering for high-performance nBn infrared photodetectors, Doctorate, F.UZGUR(Student), 2020

Bek A., Ateş S., Quantum Optics with Single-photon Nanoantenna, Postgraduate, O.YÜCEL(Student), 2019

Bek A., İmer M. B., Development of hole transport transparent conductive electrodes for n-type crystalline silicon solar cells, Postgraduate, O.AKDEMİR(Student), 2018

Bek A., Analysis and evaluation of HFO2 based resistive RAM devices for new generation non-volatile memories, Postgraduate, S.BURHAN(Student), 2018

Bek A., Kocaman S., Radiometry-based range prediction for mid- and long-wave infrared imaging systems, Postgraduate, B.BERKAN(Student), 2018

BEK A., Design and characteristics of high performance mid-wavelength type-2 superlattice sensors, Postgraduate, F.ÖĞÜZ(Student), 2018

BEK A., Investigation of the therapeutic effect of sodium butyrate in Caco-2 colon cancer cell line by using ATR-FTIR spectroscopy, Postgraduate, B.ÇELİK(Student), 2018

BEK A., Nanosecond pulsed infrared laser induced crystallization of amorphous silicon films for potential photovoltaic applications, Doctorate, K.ÇINAR(Student), 2018

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

BEK A., Surface coverage control of self organized plasmonic nanostructures at interfaces of photovoltaics related materials, Postgraduate, G.BİRANT(Student), 2017

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

Danışman M. F., Bek A., Utilization of fiber loop ring down technique for sensing applications, Postgraduate, A.YOLALMAZ(Student), 2017

BEK A., Investigation of structural and functional properties of OmpG mutants by FTIR spectroscopy, Postgraduate, İ.YILMAZ(Student), 2017

BEK A., YERCİ S., Characterization of molybdenum oxide and magnesium doped zinc oxide charge transport layers deposited by sputtering for heterojunction solar cells, Postgraduate, G.BEKTAŞ(Student), 2017

BEK A., Suppression of coffee-ring effect in random optical potentials, Postgraduate, M.YAĞMUR(Student), 2017

BEK A., YERCİ S., Development of a large area germanium on insulator platform by liquid phase epitaxy, Postgraduate, Z.İREM(Student), 2017

ÜNALAN H. E., BEK A., Production and characterization of multilayered one dimensional plasmonic nanowires, Postgraduate, E.AYGÜN(Student), 2017

BEK A., Fabrication of well-organized plasmonic interfaces by nanosphere lithography, Postgraduate, Y.KASAP(Student), 2016

BEK A., A systematic study on adatom interaction with graphyne polymorphs, Postgraduate, Y.GÖZDE(Student), 2016

BEK A., Influence of nanoparticle shape on colloidal plasmonic interface properties, Postgraduate, E.SARIGÜL(Student), 2014

BEK A., Development of a 60W pulsed fiber laser amplifier for materials processing, Postgraduate, Y.OZAN(Student), 2014

BEK A., Fabrication of various metal nanostructures with hole mask colloidal lithography, Postgraduate, İ.MURAT(Student), 2014

ÜNALAN H. E., BEK A., A feasibility study for external control on self-organized production of plasmonic enhancement interfaces for solar cells, Postgraduate, M.ZOLFAGHARI(Student), 2013

BEK A., ÜNALAN H. E., A Feasibility study for external control on self-organized production of plasmonic enhancement interfaces for solar cells, Postgraduate, M.Zolfaghari(Student), 2013

TURAN R., BEK A., Effect of substrate type on structural and optical properties of metal nanoparticles for plasmonic applications, Postgraduate, İ.Tanyeli(Student), 2011

Bek A., Atomik Kuvvet Mikroskopu Nanomanipülasyonu ile Sıcak Nokta Üretimi, Postgraduate, R.Jansen(Student), 2008

Jury Memberships

Award, PARLAR VAKFI 2021, Orta Doğu Teknik Üniversitesi, November, 2021

Award, TÜBA GEBİP 2021, Orta Doğu Teknik Üniversitesi, June, 2021

Award, AdımODTÜ 2021, Orta Doğu Teknik Üniversitesi, April, 2021

Award, Bilim Akademisi BAGEP 2021, Orta Doğu Teknik Üniversitesi, March, 2021

Award, PARLAR VAKFI 2020, Orta Doğu Teknik Üniversitesi, December, 2020

Award, TÜBA GEBİP ÖDÜLÜ 2020, Middle East Technical University, August, 2020

Award, BİLİM AKADEMİSİ BAGEP 2020, Orta Doğu Teknik Üniversitesi, March, 2020

Award, TÜBA GEBİP 2019 alan jüri üyeliği, Middle East Technical University, June, 2019

PhD Thesis Monitoring Committee Member, PhD Thesis Monitoring Committee Member, Orta Doğu Teknik Üniversitesi, June, 2019
Award, Mustafa Parlar Ödülü, Orta Doğu Teknik Üniversitesi, February, 2019
Competition, Adım ODTÜ proje yarışması, Orta Doğu Teknik Üniversitesi, February, 2019
Award, BAGEP 2019, Middle East Technical University, February, 2019
Appointment to Academic Staff-Assistant Professorship, Appointment Academic Staff, Arab-American University of Jenin, January, 2019
Doctorate, Doctorate, Orta Doğu Teknik Üniversitesi, December, 2018
Doctorate, Doctorate, İhsan Doğramacı Bilkent Üniversitesi, November, 2018
Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, November, 2018
Doctoral Examination, Doctoral Examination, Orta Doğu Teknik Üniversitesi, November, 2018
Award, Parlar Vakfı Araştırma Teşvik Ödülü, Orta Doğu Teknik Üniversitesi, November, 2018
Doctoral Examination, Doctoral Examination, Orta Doğu Teknik Üniversitesi, November, 2018
Doctorate, Doctorate, Orta Doğu Teknik Üniversitesi, October, 2018
Doctorate, Doctorate, Orta Doğu Teknik Üniversitesi, September, 2018
Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, September, 2018
Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, September, 2018
Doctorate, Doctorate, Orta Doğu Teknik Üniversitesi, September, 2018
Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, August, 2018
Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, August, 2018
Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, June, 2018
Award, TÜBA-GEBİP ÖDÜLÜ 2018, TÜBA, May, 2018
Doctoral Examination, Doctoral Examination, Orta Doğu Teknik Üniversitesi, May, 2018
Doctoral Examination, Doctoral Examination, Orta Doğu Teknik Üniversitesi, May, 2018
Appointment to Academic Staff-Professorship, Appointment Academic Staff, Arab Americal University of Jenin, April, 2018
Doctorate, Doctorate, Orta Doğu Teknik Üniversitesi, April, 2018
Doctoral Examination, Doctoral Examination, İhsan Doğramacı Bilkent Üniversitesi, March, 2018
Award, Bilim Akademisi - BAGEP 2018 ÖDÜLÜ, Bilim Akademisi, February, 2018
Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, January, 2018
Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, January, 2018
Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, January, 2018
Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, January, 2018
Doctorate, Doctorate, Orta Doğu Teknik Üniversitesi, January, 2018
Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, January, 2018

Designed Lessons

Bek A., Introduction to Nanooptics, Postgraduate, 2017 - 2018

Research Infrastructure Information

Bek A., Nanooptik Araştırma Laboratuvarı, January 2015

Published journal articles indexed by SCI, SSCI, and AHCI

I. Laser-Induced Damage of UHMW-PE-Based Layered Ballistic Materials

CANDAN C., Kaya Çekin E. Y., Akşit Kaya E. T., Tiken M., BEK A., Berberoğlu H., ORHAN E., Yeniay A.

ACS Omega, vol.9, no.46, pp.45858-45869, 2024 (SCI-Expanded)

- II. **Development of a selective wet-chemical etchant for precise 3D sculpting of silicon enabled by infrared non-linear laser modification**
Zolfaghari Borra M., Radfar B., Nasser H., Çolakoğlu T., Tokel O., Turnalı A., DEMİRTAŞ M., Işık Taşgın D., TOFFOLI H., Toffoli D., et al.
Optics and Laser Technology, vol.176, 2024 (SCI-Expanded)
- III. **Voltage-controlled extraordinary optical transmission in the visible regime**
Asif H., BEK A., TAŞGIN M. E., ŞAHİN R.
Physical Review B, vol.109, no.12, 2024 (SCI-Expanded)
- IV. **Facile synthesis of Ag-coated Au-Ag nanoworms and their shell specific etching for enhanced catalytic activity**
Khan G. A., Demirtaş Ö., BEK A., Ahmed W.
Materials Science and Engineering: B, vol.297, 2023 (SCI-Expanded)
- V. **On-demand continuous-variable quantum entanglement source for integrated circuits**
Günay M., Das P., Yüce E., Polat E. O., Bek A., Taşgın M. E.
NANOPHOTONICS, vol.12, no.2, pp.229-237, 2023 (SCI-Expanded)
- VI. **Ultra-Narrow Linewidth Photo-Emitters in Polymorphic Selenium Nanoflakes**
Hussain N., Ahmed S., Tepe H. U., Huang K., Avishan N., He S., Rafique M., Farooq U., KASIRGA T. S., BEK A., et al.
SMALL, vol.18, 2022 (SCI-Expanded)
- VII. **Optical light management by self-arrangement of inverted tetragonal pyramids on the silicon surface through copper-assisted etching technique in a single step**
Donercark E., Çolakoğlu T., Terlemezoğlu M., Abak M. K., Çiftpinar E. H., Bek A., Turan R.
INTERNATIONAL JOURNAL OF ENERGY RESEARCH, vol.46, no.15, pp.24322-24331, 2022 (SCI-Expanded)
- VIII. **LIPSS for SERS: Metal Coated Direct Laser Written Periodic Nanostructures for Surface Enhanced Raman Spectroscopy**
Erkizan S. N., İDİKUT F., Demirtas O., Goodarzi A., Demir A. K., Borra M., PAVLOV I., BEK A.
ADVANCED OPTICAL MATERIALS, vol.10, no.22, 2022 (SCI-Expanded)
- IX. **Structural, mechanical and electrical properties of sputter-coated copper thin films on polyethylene terephthalate**
Abdeltwab E., Atta A., BEK A.
International Journal of Modern Physics B, vol.36, no.20, 2022 (SCI-Expanded)
- X. **Laser Photochemical Nanostructuring of Silicon for Surface Enhanced Raman Spectroscopy**
Akbiyık A., Avishan N., Demirtaş Ö., Demir A. K., Yüce E., Bek A.
Advanced Optical Materials, vol.10, no.14, 2022 (SCI-Expanded)
- XI. **Seedless, size and shape controlled synthesis of gold mesoscopic particles and their excellent SERS applications**
Ahmed W., Öztürk İ. M., İftikhar R. M. F., Bek A.
Materials Chemistry and Physics, vol.278, 2022 (SCI-Expanded)
- XII. **High Performance 15-µm Pitch 640x512 MWIR InAs/GaSb Type-II Superlattice Sensors**
Oguz F., Ulker E., Arslan Y., Nuzumlalı O. L., BEK A., Ozbay E.
IEEE Journal of Quantum Electronics, vol.58, 2022 (SCI-Expanded)
- XIII. **Shape and deposition angle control of silver film-over-nanosphere SERS substrates**
Seydpour Esmailzad N., Demirtas O., Demir A. K., BEK A.
NANOTECHNOLOGY, vol.32, no.50, 2021 (SCI-Expanded)
- XIV. **Fano enhancement of unlocalized nonlinear optical processes**
Günay M., Cicek A., Korozlu N., Bek A., Taşgın M. E.
PHYSICAL REVIEW B, vol.104, no.23, 2021 (SCI-Expanded)
- XV. **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 (SCI-Expanded)
- XVI. **Laser Crystallization of Amorphous Ge Thin Films via a Nanosecond Pulsed Infrared Laser**

- Korkut C., Cinar K., Kabacelik I., TURAN R., Kulakci M., BEK A.
CRYSTAL GROWTH & DESIGN, vol.21, no.8, pp.4632-4639, 2021 (SCI-Expanded)
- XVII. **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 (SCI-Expanded)
- XVIII. **Surface Physical Properties of Ion Beam Sputtered Copper Thin Films on Poly Tetrafluoroethylene**
Atta A., Abdeltwab E., BEK A.
SURFACE TOPOGRAPHY-METROLOGY AND PROPERTIES, vol.9, no.2, 2021 (SCI-Expanded)
- XIX. **Fabrication of flexible, cost-effective, and scalable silver substrates for efficient surface enhanced Raman spectroscopy based trace detection**
Khan G. A., Demirtas O. O., Demir A. K., AYTEKİN Ö., BEK A., Bhatti A. S., Ahmed W.
COLLOIDS AND SURFACES A-PHYSCOCHEMICAL AND ENGINEERING ASPECTS, vol.619, 2021 (SCI-Expanded)
- XX. **Nanosphere Concentrated Photovoltaics with Shape Control**
Esmailzad N. S., Demir A. K., Hajivandi J., Ciftpinar H., Turan R., Kurt H., Bek A.
ADVANCED OPTICAL MATERIALS, vol.9, no.3, 2021 (SCI-Expanded)
- XXI. **Plasmonic Light-Management Interfaces by Polyol-Synthesized Silver Nanoparticles for Industrial Scale Silicon Solar Cells**
Birant G., ÖZTÜRK İ. M., DOĞANAY D., ÜNALAN H. E., BEK A.
ACS Applied Nano Materials, vol.3, no.12, pp.12231-12239, 2020 (SCI-Expanded)
- XXII. **Implementation of generalized Harvey-Shack theory in light scattering from rough surfaces**
Gunoven M., Nasser H., Ünal M., Aytakin O., Turan R., Bek A.
PHYSICAL REVIEW A, vol.102, no.6, 2020 (SCI-Expanded)
- XXIII. **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 (SCI-Expanded)
- XXIV. **Facile preparation of nanoparticle based SERS substrates for trace molecule detection**
Demirta O., DOĞANAY D., ÖZTÜRK İ. M., ÜNALAN H. E., BEK A.
PHYSICAL CHEMISTRY CHEMICAL PHYSICS, vol.22, no.37, pp.21139-21146, 2020 (SCI-Expanded)
- XXV. **Monolayer Assembly of MultiSpiked Gold Nanoparticles for Surface-Enhanced Raman Spectroscopy-Based Trace Detection of Dyes and Explosives**
Ahmed W., Demirtas O., ÖZTÜRK İ. M., BEK A.
ACS APPLIED NANO MATERIALS, vol.3, no.7, pp.6766-6773, 2020 (SCI-Expanded)
- XXVI. **Quantum emitter interacting with graphene coating in the strong-coupling regime**
Gunay M., Karanikolas V., Şahin R., Ovali R. V., Bek A., Taşgin M. E.
PHYSICAL REVIEW B, vol.101, no.16, 2020 (SCI-Expanded)
- XXVII. **MoOx/Ag/MoOx multilayers as hole transport transparent conductive electrodes for n-type crystalline silicon solar cells**
Akdemir O., Borra M. Z., Nasser H., TURAN R., BEK A.
INTERNATIONAL JOURNAL OF ENERGY RESEARCH, vol.44, no.4, pp.3098-3109, 2020 (SCI-Expanded)
- XXVIII. **Lithography-Free Random Bismuth Nanostructures for Full Solar Spectrum Harvesting and Mid-Infrared Sensing**
Soydan M. C., Ghobadi A., Yildirim D. U., Duman E. S., BEK A., Erturk V. B., Ozbay E.
ADVANCED OPTICAL MATERIALS, vol.8, no.4, 2020 (SCI-Expanded)
- XXIX. **Plasmon lifetime enhancement in a bright-dark mode coupled system**
Yildiz B. C., Bek A., Taşgin M. E.
PHYSICAL REVIEW B, vol.101, 2020 (SCI-Expanded)
- XXX. **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 (SCI-Expanded)

- XXXI. **Fabrication of 15- μ m Pitch 640 x 512 InAs/GaSb Type-II Superlattice Focal Plane Arrays**
Oguz F., Arslan Y., Ulker E., BEK A., Ozbay E.
IEEE JOURNAL OF QUANTUM ELECTRONICS, vol.55, no.4, 2019 (SCI-Expanded)
- XXXII. **Synthesis of tin oxide-coated gold nanostars and evaluation of their surface-enhanced Raman scattering activities**
Elci A., Demirtas O., Öztürk İ. M., Bek A., Esenturk E.
JOURNAL OF MATERIALS SCIENCE, vol.53, pp.16345-16356, 2018 (SCI-Expanded)
- XXXIII. **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 (SCI-Expanded)
- XXXIV. **Improvement of Laser-Crystallized Silicon Film Quality via Intermediate Dielectric Layers on a Glass Substrate**
Cinar K., Karaman M., Bek A.
ACS OMEGA, vol.3, pp.5846-5852, 2018 (SCI-Expanded)
- XXXV. **Electrical response of electron selective atomic layer deposited TiO₂-x heterocontacts on crystalline silicon substrates**
Ahiboz D., Nasser H., Aygun E., Bek A., Turan R.
SEMICONDUCTOR SCIENCE AND TECHNOLOGY, vol.33, no.4, 2018 (SCI-Expanded)
- XXXVI. **Frequency Modulated Raman Spectroscopy**
Greco S., Dal Zilio S., Bek A., Lazzarino M., Naumenko D.
ACS PHOTONICS, vol.5, pp.312-317, 2018 (SCI-Expanded)
- XXXVII. **97 percent light absorption in an ultrabroadband frequency range utilizing an ultrathin metal layer: randomly oriented, densely packed dielectric nanowires as an excellent light trapping scaffold**
Ghobadi A., Dereshgi S. A., Hajian H., Birant G., BÜTÜN B., BEK A., ÖZBAY E.
NANOSCALE, vol.9, no.43, pp.16652-16660, 2017 (SCI-Expanded)
- XXXVIII. **In-chip microstructures and photonic devices fabricated by nonlinear laser lithography deep inside silicon**
Tokel O., Turnali A., Makey G., Elahi P., Colakoglu T., Ergecen E., Yavuz O., Hubner R., Borra M. Z., Pavlov I., et al.
NATURE PHOTONICS, vol.11, pp.639-646, 2017 (SCI-Expanded)
- XXXIX. **Silver nanowire networks as transparent top electrodes for silicon solar cells**
AURANG P., DOĞANAY D., BEK A., TURAN R., ÜNALAN H. E.
SOLAR ENERGY, vol.141, pp.110-117, 2017 (SCI-Expanded)
- XL. **A micromechanical switchable hot spot for SERS applications**
Naumenko D., Toffoli V., Greco S., Dalzilio S., Bek A., Lazzarino M.
APPLIED PHYSICS LETTERS, vol.109, 2016 (SCI-Expanded)
- XLI. **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.
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- BEK A., TAŞGIN M. E., ATAÇ MOGOL B., GÖKMEN V., TÜBİTAK - AB COST Project, Tahıllarda Asparajın ve Tahıl Ürünlerinde Akrilamid Tespiti İçin Taşınabilir Bir SERS Cihazı Geliştirilmesi (AcrySERS), 2024 - 2027
- BEK A., TUBİTAK Project, Derin Öğrenme Tabanlı Sıkıştırılmış Algılamalı Mikroendoskopi Teknolojisi, 2022 - 2025
- POLAT B., BEK A., TUBİTAK Project, Lazer yardımcı hidrokömür tabanlı atıksu arıtma cihazı geliştirilmesi, 2022 - 2024
- BEK A., TÜBİTAK International Bilateral Joint Cooperation Program Project, Akışkanlarda Mikrop Tespiti İçin Sers Aktif Gümüş Nanotel Filtre Folyoları Geliştirilmesi (Ramanfilter), 2020 - 2023
- Bek A., TUBİTAK Project, Kuantum Girişim Arttırımlı Raman Spektroskopisi (Qupers), 2020 - 2023
- BEK A., İDİKUT F., DEMİRTAŞ Ö., ÖZTÜRK İ. M., Project Supported by Higher Education Institutions, Femtosaniye kızılötesi lazerle silisyum pul içi gömülü kırınım yapılarının 5 mikrometre altı çözünürlükle doğrudan yazılması, 2018 - 2022
- BEK A., TUBİTAK Project, Yarıiletken Pul Yüzey Altının Lazerle Mikrometre Ve Altı Boyutta İşlenmesi (Mikroyalaz), 2018 - 2021
- BEK A., TÜBİTAK International Bilateral Joint Cooperation Program Project, Kuvvet Modüleli Raman Spektroskopisi (Formers), 2016 - 2018
- BEK A., TUBİTAK Project, Lazer Kristalizasyon Yöntemi İle Yüksek Verimli İnce Film Kristal Si Güneş Gözesi Geliştirilmesi, 2015 - 2018
- BEK A., TUBİTAK Project, Plazmonik Uygulamaları İçin Geniş Alanlı Dielektrik Yüzeylerin Kontrollü Asimetrik Metal Nanoyapılarla Donatılması, 2015 - 2018
- BEK A., BİRANT G., İDİKUT F., Project Supported by Higher Education Institutions, İnce film kristal silisyum heteroeklem üretimi, 2017 - 2017
- BEK A., DEMİRTAŞ Ö., SEYEDPOUR ESMAEILZAD S., ÖZTÜRK İ. M., Project Supported by Higher Education Institutions, Düzenli nano yapılarla donatılmış Raman artırım arayüzleri üretilmesi ve artırım kanallarının analizi, 2017 - 2017
- Bek A., Tokel O., TUBİTAK Project, Uzaysal Işık Modülatörleri ile Güneş Pilleri için Lazer Mikroişleme, 2015 - 2017
- BEK A., DEMİRTAŞ Ö., Project Supported by Higher Education Institutions, Moleküler Yapısal Değişikliklerin Kuvvet Kipli Raman Spektroskopisi ile Tespiti, 2016 - 2016
- BEK A., TÜBİTAK International Bilateral Joint Cooperation Program Project, Tek Molekül Tespiti İçin Frekans Kipli Raman Saçılması, 2014 - 2016
- Bek A., TÜBİTAK International Bilateral Joint Cooperation Program Project, Tek molekül tespiti için frekans modüleli Raman saçılması, 2014 - 2016
- BEK A., TUBİTAK Project, Si Güneş Gözelerinde Arttırılmış Kızılötesi Verimi İçin Doğrusal Olmayan Plazmonik Çevirici

Tasarımı Ve Üretimi, 2014 - 2016

Bek A., Project Supported by Higher Education Institutions, Orta Doğu Teknik Üniversitesi -Disiplinler arası proje, Proje No:BAP-07-02-2015-006, "Kolon Kanseri Hücrelerinde Histon Deasetilaz İnhibitörünün Terapötik Etkilerinin Mikronanoteknolojik Yöntemlerle Araştırılması, 2015 - 2015

BEK A., ÖZTÜRK İ. M., Project Supported by Higher Education Institutions, Tek molekül tespiti için FREkans MODüleli Raman Saçılması (FREMORS), 2015 - 2015

BEK A., Industrial Thesis Project, Yüksek Performanslı Atomik Kuvvet Mikroskobu Geliştirilmesi, 2013 - 2015

Bek A., FP7 Project, FOCUS SINGLE MOLECULE ACTIVATION AND COMPUTING, 2011 - 2014

BEK A., ZOLFAGHARIBORRA M., KASAP Y., TURGUT B. B., ÖZTÜRK M., Project Supported by Higher Education Institutions, Plazmonik Metal Nanoyapılar Yardımıyla Silisyum Tabanlı Güneş Pili Etkinliğinin Artırılması, 2011 - 2013

Contractual Researches

BEK A., Nanomanyetik, 2016 - Continues

Bek A., Robsys, PV Panel Temizlik Robotu Termal Kamera ile Kusur Tespiti, 2023 - 2024

Bek A., Nanomanyetik, DÜŞÜK SICAKLIK OPTİK AÇIKLIKSIZ TARAMALI YAKIN ALAN OPTİK MİKROSKOPU GELİŞTİRİLMESİ, 2018 - 2019

BEK A., Nanomanyetik, 2016 - 2016

BEK A., Yüksek Performanslı Atomik Kuvvet Mikroskobu Geliştirilmesi, 2013 - 2015

Activities in Scientific Journals

FRONTIERS IN PHYSICS, Committee Member, 2022 - Continues

Frontiers in Photonics, Committee Member, 2022 - Continues

FRONTIERS IN CHEMISTRY, Committee Member, 2021 - Continues

FRONTIERS IN PHOTONICS, Committee Member, 2021 - Continues

FRONTIERS IN PHYSICS, Evaluation Committee Member, 2016 - 2022

Memberships / Tasks in Scientific Organizations

INSTICC, Member, 2019 - Continues, Portugal

SPIE, Member, 2015 - Continues

APS, Member, 1993 - 2022, United States Of America

Scientific Refereeing

FRONTIERS IN PHYSICS, SCI Journal, December 2021

MODERN PHYSICS LETTERS B, SCI Journal, December 2021

International Journal of Thermodynamics, Journal Indexed in ESCI, December 2021

JOURNAL OF RAMAN SPECTROSCOPY, SCI Journal, December 2021

TURKISH JOURNAL OF PHYSICS, Journal Indexed in SCI-E, November 2021

TUBITAK Project, 2247 - A National Leading Researchers Program, Middle East Technical University, Turkey, November 2021

TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Middle East Technical University, Turkey, November 2021

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Surfaces and Interfaces, SCI Journal, October 2021

TUBITAK Project, 1003 - Priority Areas R&D Projects Support Program, Middle East Technical University, Turkey, October 2021

TUBITAK Project, 2219 - Yurt Dışı Doktora Sonrası Araştırma Burs Programı, Middle East Technical University, Turkey, September 2021

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APPLIED SURFACE SCIENCE, SCI Journal, August 2021

Surfaces and Interfaces, SCI Journal, August 2021

TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, Journal Indexed in SCI-E, August 2021

TUBITAK Project, 3501 - National Young Researcher Career Development Program, Middle East Technical University, Turkey, August 2021

TUBITAK Project, 1002 - Quick Support Program, Middle East Technical University, Turkey, August 2021

Surfaces and Interfaces, SCI Journal, May 2021

APPLIED SURFACE SCIENCE, SCI Journal, May 2021

OPTICS LETTERS, SCI Journal, May 2021

TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Middle East Technical University, Turkey, May 2021

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TUBITAK Project, 1003 - Priority Areas R&D Projects Support Program, Middle East Technical University, Turkey, April 2021

APPLIED SURFACE SCIENCE, SCI Journal, March 2021

JOURNAL OF APPLIED PHYSICS, SCI Journal, March 2021

OPTICS EXPRESS, SCI Journal, March 2021

TUBITAK Project, 1002 - Quick Support Program, Middle East Technical University, Turkey, March 2021

TUBITAK Project, 1003 - Priority Areas R&D Projects Support Program, Middle East Technical University, Turkey, March 2021

MATERIALS CHEMISTRY AND PHYSICS, SCI Journal, February 2021

APPLIED SURFACE SCIENCE, SCI Journal, January 2021

PROGRESS IN ELECTROMAGNETICS RESEARCH-PIER, Journal Indexed in SCI-E, December 2020

SPECTROCHIMICA ACTA PART A-MOLECULAR AND BIOMOLECULAR SPECTROSCOPY, SCI Journal, December 2020

Technopark, Middle East Technical University, Turkey, December 2020

Technopark, Middle East Technical University, Turkey, December 2020

TUBITAK Project, 1002 - Quick Support Program, Middle East Technical University, Turkey, November 2020

TUBITAK Project, 2232 - Dormitory Research Scholarship Program, Middle East Technical University, Turkey, November 2020

TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Middle East Technical University, Turkey, November 2020

TUBITAK Project, 1002 - Quick Support Program, Middle East Technical University, Turkey, November 2020

TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Middle East Technical University, Turkey, November 2020

PHYSICA B-CONDENSED MATTER, SCI Journal, October 2020
JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS, Journal Indexed in SCI-E, September 2020
SOLAR RRL, Journal Indexed in ESCI, August 2020
Project Supported by Higher Education Institutions, BAP Research Project, Middle East Technical University, Turkey, August 2020
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TUBITAK Project, 3501 - National Young Researcher Career Development Program, Middle East Technical University, Turkey, August 2020
ACTA MATERIALIA, Journal Indexed in SCI-E, July 2020
PHYSICA B-CONDENSED MATTER, SCI Journal, July 2020
Project Supported by Higher Education Institutions, BAP Research Project, Middle East Technical University, Turkey, July 2020
SURFACE REVIEW AND LETTERS, SCI Journal, June 2020
RSC ADVANCES, SCI Journal, April 2020
OPTICAL MATERIALS EXPRESS, Journal Indexed in SCI-E, March 2020
Project Supported by Higher Education Institutions, BAP Guided, Ankara Yildirim Beyazit University, Turkey, March 2020
PLASMONICS, National Scientific Refreed Journal, February 2020
GLOBAL CHALLENGES, Journal Indexed in SCI-E, January 2020
TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Middle East Technical University, Turkey, January 2020
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TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Middle East Technical University, Turkey, January 2020
Project Supported by Public Organizations in Other Countries, Rusya Federasyonu Eğitim Bakanlığı, Russia, October 2019
Project Supported by Other Official Institutions, Sivas Cumhuriyet University, Turkey, September 2019
TUBITAK Project, 3501 - National Young Researcher Career Development Program, Middle East Technical University, Turkey, August 2019
OPTICS EXPRESS, SCI Journal, July 2019
RENEWABLE ENERGY, SCI Journal, June 2019
OPTICS LETTERS, SCI Journal, June 2019
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TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Middle East Technical University, Turkey, June 2019
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TUBITAK Project, 1002 - Quick Support Program, Middle East Technical University, Turkey, March 2019
PLASMONICS, SCI Journal, February 2019
NANOPHOTONICS, SCI Journal, February 2019
TUBITAK Project, 1003 - Priority Areas R&D Projects Support Program, Middle East Technical University, Turkey, February 2019
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OPTICS EXPRESS, SCI Journal, January 2019
RENEWABLE ENERGY, SCI Journal, January 2019
RENEWABLE ENERGY, SCI Journal, January 2019
FRONTIERS IN CHEMISTRY, SCI Journal, December 2018
DOKUZ EYLÜL ÜNİVERSİTESİ MÜHENDİSLİK FAKÜLTESİ FEN VE MÜHENDİSLİK DERGİSİ, National Scientific Refreed Journal, November 2018
PROGRESS IN ELECTROMAGNETICS RESEARCH-PIER, SCI Journal, November 2018
Plasmonics, SCI Journal, September 2018
JOURNAL OF PHYSICAL CHEMISTRY, SCI Journal, September 2018
PROGRESS IN ELECTROMAGNETICS RESEARCH-PIER, SCI Journal, July 2018
FRONTIERS IN NEUROSCIENCE, SCI Journal, July 2018
TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Orta Doğu Teknik Üniversitesi, Turkey, June 2018
Plasmonics, SCI Journal, April 2018
JOURNAL OF ALLOYS AND COMPOUNDS, SCI Journal, March 2018
Journal Of Microscopy-Oxford, SCI Journal, February 2018
SCIENTIFIC REPORTS, SCI Journal, January 2018

Scientific Consultations

Nanomanyetik, Scientific Consultancy, Middle East Technical University, Faculty of Arts and Sciences, Department of Physics, Turkey, 2019 - Continues
Nanomanyetik Ltd. Şti., Scientific Consultancy, Middle East Technical University, Faculty of Arts and Sciences, Department of Physics, Turkey, 2018 - Continues
Nanomanyetik Bilimsel Cihazlar Ltd.,Şti, Project Consultancy, Middle East Technical University, Faculty of Arts and Sciences, Department of Physics, Turkey, 2018 - Continues

Tasks In Event Organizations

Bek A., YMF Ankara, Scientific Congress, Ankara, Turkey, Aralık 2023
Bek A., NanoTR-17, Scientific Congress, İzmir, Turkey, Ağustos 2023
Bek A., Çırpan A., Kuralay F., NanoTR-16, Scientific Congress, Ankara, Turkey, Eylül 2022
Bek A., Parlak M., 26. YOĞUN MADDE FİZİĞİ ANKARA TOPLANTISI (YMF26), Scientific Congress, Ankara, Turkey, Aralık 2021
Bek A., Özbay E., Sennaroğlu A., Kiraz A., Yağlıoğlu H. G., Şendur İ. K., Yalçınkaya A. D., Ferhanoğlu O., Çetin A. E., Pakin K., 22. Ulusal Optik, Elektro-Optik ve Fotonik Çalıştayı, Scientific Congress, Turkey, Eylül 2021
Bek A., Kuantum Optiği ve Bilişimi Toplantısı 5, Scientific Congress, Turkey, Nisan 2021
Bek A., BIOSTEC - BIOIMAGING 2021, Scientific Congress, Portugal, Şubat 2021
Bek A., Turan R., PVCON 2020 - 2nd International Conference on Photovoltaic Science and Technologies, Scientific Congress, Ankara, Turkey, Aralık 2020
Bek A., BIOSTEC - BIOIMAGING 2020, Scientific Congress, Valletta, Malta, Şubat 2020
Bek A., 25. Yoğun Madde Fiziği Ankara Toplantısı, Scientific Congress, Ankara, Turkey, Aralık 2019
Bek A., 21. Ulusal Optik, Elektro-Optik ve Fotonik Çalıştayı, Scientific Congress, İstanbul, Turkey, Eylül 2019
Bek A., BIOSTEC-BIOIMAGING 2019, Scientific Congress, Praha, Czech Republic, Şubat 2019

Metrics

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H-Index (WoS): 20

H-Index (Scopus): 21

Congress and Symposium Activities

Fotonik 2019, Working Group, İstanbul, Turkey, 2019

YMF Ankara 2018, Working Group, Ankara, Turkey, 2018

FOTONİK 2018, Working Group, Ankara, Turkey, 2018

2nd International Congress on Semiconductor Materials & Devices 2018 (ICSMD2018), Invited Speaker, Ardahan, Turkey, 2018

2nd International Congress on Semiconductor Materials & Devices 2018 (ICSMD2018), Working Group, Ardahan, Turkey, 2018

PVCON 2018, Working Group, Ankara, Turkey, 2018

UPCON 2, Working Group, Valencia, Spain, 2018

Kobit 2018, Working Group, İstanbul, Turkey, 2018

Invited Talks

Ulusal yaz okulu sunumu, Seminar, Maltepe Üniversitesi, Turkey, July 2019

Surface Enhanced Raman Scattering (SERS) with silver nanoparticles, nanowires and gold nanostars, Seminar, İhsan Doğramacı Bilkent Üniversitesi, Turkey, February 2018

Awards

BEK A., BAGEP 2013, Bilim Akademisi, April 2013

Non Academic Experience

Nanomanyetik Bilimsel Cihazlar

Nanomanyetik Bilimsel Cihazlar San. ve Tic. Ltd. Şti.

Cluster in Biomedicine (CBM Scrl), Trieste