



## Kişisel Bilgiler

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## Biyografi

Dr. Talha Erdem received his BS, MS, and PhD degrees all in Electrical and Electronics Engineering from Bilkent University in 2009, 2011, and 2016, respectively. During his MS and PhD he worked on the design and optimization of high-quality light-emitting diodes. After his PhD he was awarded the Newton International Fellowship by the Royal Society and moved to the University of Cambridge as a Newton International Fellow. At Cambridge, he worked on the smart self-assembly of nanomaterials for photonic applications. In April 2019 he moved to Abdullah Gül University as an Assistant Professor and established the Smart Nanophotonics Research Group, His current research interests are the design of stable nano-emitters, DNA-driven self-assembly of colloidal nanoparticles, and their photonic applications.

## Araştırma Alanları

Dielektrik Malzeme ve Aygıtlar , Optik Malzeme ve Aygıtlar , Optoelektronik Malzeme ve Aygıtlar , Yarı İletken Malzeme ve Aygıtlar , Mühendislik ve Teknoloji

## Akademik Unvanlar / Görevler

Dr.Öğr.Üyesi, Abdullah Gül Üniversitesi, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği, 2019 - Devam Ediyor

## Verdiği Dersler

Nano- ve Mikroboyut Sistem Tasarımı Kapsülü, Lisans, 2022 - 2023

Sensör Sistemleri Tasarımı Kapsülü, Lisans, 2022 - 2023

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## SCI, SSCI ve AHCI İndekslerine Giren Dergilerde Yayınlanan Makaleler

1. Effects of silver nanowires and their surface modification on electromagnetic interference, transport and mechanical properties of an aerospace grade epoxy

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- II. **Numerical analysis and experimental verification of optical scattering from microplastics**  
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- III. **Use of Confocal Microscopy to Monitor Structural Transformations in Nanopillars Based on DNA and CdSe/CdZnSe/ZnS Quantum Dots**  
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- VI. **Color Enrichment Solids of Spectrally Pure Colloidal Quantum Wells for Wide Color Span in Displays**  
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- VII. **Transparent Colloidal Crystals With Structural Colours**  
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- VIII. **Optical detection of microplastics in water**  
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- IX. **Tuning optical properties of self-assembled nanoparticle network with external optical excitation**  
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- X. **Osmotic-Pressure-Induced Nematic Ordering in Suspensions of Laponite and Carboxy Methyl Cellulose**  
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- XI. **A simple approach to prepare self-assembled, nacre-inspired clay/polymer nanocomposites**  
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- XII. **Transparent Films Made of Highly Scattering Particles**  
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- XIII. **Multiplexed patterning of cesium lead halide perovskite nanocrystals by additive jet printing for efficient white light generation**  
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- XIV. **Ultrathin Highly Luminescent Two-Monolayer Colloidal CdSe Nanoplatelets**  
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- XV. **Brightly Luminescent Cu-Zn-In-S/ZnS Core/Shell Quantum Dots in Salt Matrices**  
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- XVI. **Color-Enrichment Semiconductor Nanocrystals for Biorhythm-Friendly Backlighting**  
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- XVIII. **Near-Unity Emitting Copper-Doped Colloidal Semiconductor Quantum Wells for Luminescent Solar Concentrators**  
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- XIX. **CdSe/CdSe<sub>1-x</sub>Tex Core/Crown Heteronanoplatelets: Tuning the Excitonic Properties without Changing the Thickness**  
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JOURNAL OF PHYSICAL CHEMISTRY C, cilt.121, sa.8, ss.4650-4658, 2017 (SCI-Expanded)
- XX. **Colloidal Nanocrystals Embedded in Macrocrystals: Methods and Applications**  
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JOURNAL OF PHYSICAL CHEMISTRY LETTERS, cilt.7, sa.20, ss.4117-4123, 2016 (SCI-Expanded)
- XXI. **High-Stability, High-Efficiency Organic Monoliths Made of Oligomer Nanoparticles Wrapped in Organic Matrix**  
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- XXII. **Excitonic improvement of colloidal nanocrystals in salt powder matrix for quality lighting and color enrichment**  
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- XXIII. **Colloidal nanocrystals for quality lighting and displays: milestones and recent developments**  
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- XXIV. **Implementation of High-Quality Warm-White Light-Emitting Diodes by a Model-Experimental Feedback Approach Using Quantum Dot-Salt Mixed Crystals**  
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- XXV. **Continuously Tunable Emission in Inverted Type-I CdS/CdSe Core/Crown Semiconductor Nanoplatelets**  
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- XXVII. **Sweet plasmonics: Sucrose macrocrystals of metal nanoparticles**  
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- XXVIII. **Construction of multi-layered white emitting organic nanoparticles by clicking polymers**  
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- XXX. **Manganese Doped Fluorescent Paramagnetic Nanocrystals for Dual-Modal Imaging**  
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- SMALL, cilt.10, sa.23, ss.4961-4966, 2014 (SCI-Expanded)
- XXXI. **Energy-saving quality road lighting with colloidal quantum dot nanophosphors**  
ERDEM T., Kelestemur Y., Soran-Erdem Z., Ji Y., Demir H. V.  
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- XXXII. **Highly polarized light emission by isotropic quantum dots integrated with magnetically aligned segmented nanowires**  
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- XXXIII. **Comparative study of field-dependent carrier dynamics and emission kinetics of InGaN/GaN light-emitting diodes grown on (11(2)over-bar2) semipolar versus (0001) polar planes**  
Ji Y., Liu W., ERDEM T., Chen R., Tan S. T., Zhang Z., Ju Z., Zhang X., Sun H., Sun X. W., et al.  
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- XXXIV. **Tunable White-Light-Emitting Mn-Doped ZnSe Nanocrystals**  
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- XXXV. **Morphology-Dependent Energy Transfer of Polyfluorene Nanoparticles Decorating InGaN/GaN Quantum-Well Nanopillars**  
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- XXXVI. **Color science of nanocrystal quantum dots for lighting and displays**  
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- XXXVII. **Large-Area (over 50 cm x 50 cm) Freestanding Films of Colloidal InP/ZnS Quantum Dots**  
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- XXXVIII. **Computational study of power conversion and luminous efficiency performance for semiconductor quantum dot nanophosphors on light-emitting diodes**  
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- XLII. **White-Emitting Conjugated Polymer Nanoparticles with Cross-Linked Shell for Mechanical Stability and Controllable Photometric Properties in Color-Conversion LED Applications**  
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- XLIII. **Semiconductor nanocrystals as rare-earth alternatives**  
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## Kitap & Kitap Bölümleri

- I. **Color Science and Photometry for Lighting with LEDs and Semiconductor Nanocrystals**  
ERDEM T., DEMİR H. V.  
Springer, Singapore, 2019

## Hakemli Kongre / Sempozyum Bildiri Kitaplarında Yer Alan Yayınlar

- I. **Machine Learning Based Classification of Microparticles Using Optical Scattering Simulations**  
Genç S., İçöz K., Erdem T.  
16th Nanoscience and Nanotechnology Conference (NANOTR), Ankara, Türkiye, 5 - 08 Eylül 2022, ss.51
- II. **Simple, sustainable fabrication of fully solution-processed, transparent, metal-semiconductor-metal photodetectors using a surgical blade as an alternative to conventional tools**  
SAVAŞ M., YAZICI A. F., Arslan A., MUTLUGÜN E., ERDEM T.  
Conference on Nanophotonics IX Part of SPIE Photonics Europe Conference, Strasbourg, Fransa, 3 Nisan - 20 Mayıs 2022, cilt.12131
- III. **Machine Learning Assisted Particle Size and Type Classification Using Wavelength-Dependent Scattering Patterns**  
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- IV. **Exciton transfer and polarized emission in colloidal quantum dot-anthracene crystals**  
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- V. **High-efficiency high-quality street lighting with colloidal quantum dot nanophosphors**  
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- VI. **Large area 50 cm x 50 cm freestanding flexible optical membranes of Cd free nanocrystal quantum dots**  
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- VII. **Power conversion and luminous efficiency performance of nanophosphor quantum dots on color-conversion LEDs for high-quality general lighting**  
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- VIII. **Large-area (> 50 cm x 50 cm), freestanding, flexible, optical membranes of Cd-free nanocrystal quantum dots**  
Mutlugun E., Martinez P. L. H., Eroglu C., Coskun Y., ERDEM T., Sharma V. K., Unal E., Panda S. K., Hickey S. G., Gaponik N., et al.  
25th IEEE Photonics Conference (IPC), California, Amerika Birleşik Devletleri, 23 - 27 Eylül 2012, ss.477-478
- IX. **Non-radiative energy-transfer-driven quantum dot LEDs**  
Guzelturk B., ERDEM T., Unal E., Nizamoglu S., Tuncel D., Demir H. V.

## Desteklenen Projeler

- Erkartal M., Erdem T., Büküşoğlu E., Şen Ü., TÜBİTAK Projesi, Uçucu Organik Bileşik, Gaz Ve Nem Algılama Uygulamaları İçin Metal-Organik Kafes Ve Metal-Oksit Melez Yapılar İçeren Bir Boyutlu Fotonik Yapıların Geliştirilmesi, 2023 - 2025
- Erdem T., Boynueğri A. R., TÜBİTAK Projesi, 8. Lazer Kullanılarak Yüksek Verimli Ve Uzun Mesafeli Kablosuz Güç Aktarımı, 2022 - 2024
- Erdem T., TÜBİTAK Projesi, Programlanabilir kendinden dizilimle optoelektronik aygıtların geliştirilmesi, 2021 - 2024
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- Erdem T., Newton Programı Destekli Proje, Optical sensing of single-stranded DNAs by self-assembling DNA-functionalized nanoparticles of cellulose, semiconductors, and carbon dots, 2022 - 2023
- Erdem T., TÜBİTAK Uluslararası İkili İşbirliği Projesi, Plazmon Filmleri Üzerine Kuantum Noktacıklarının Akıllı Kendinden Dizilimine Dayalı Ekziton-Plazmon Sistemlerinde Optik Tepki Olusturmanın Mekanizmaları, 2021 - 2023
- Erdem T., Diğer Ülkelerdeki Kamu Kurumları Tarafından Desteklenmiş Proje, Investigation of the effect of light on the smart self-assembly of metal nanoparticles, 2020 - 2022
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## Bilimsel Dergilerdeki Faaliyetler

Royal Society Open Science, Yardımcı Editör/Bölüm Editörü, 2017 - Devam Ediyor

## Metrikler

Yayın: 55

Atf (WoS): 1216

Atf (Scopus): 1690

H-İndeks (WoS): 19

H-İndeks (Scopus): 20