

Asst. Prof. TALHA ERDEM

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Biography

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.

Research Areas

Dielectric Materials and Devices, Optical Materials and Devices, Optoelectronic Materials and Devices, Semiconducting Materials and Devices, Engineering and Technology

Academic Titles / Tasks

Assistant Professor, Abdullah Gul University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği, 2019 - Continues

Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

- I. **Tuning optical properties of self-assembled nanoparticle network with external optical excitation**
Senel Z., İÇÖZ K., ERDEM T.
JOURNAL OF APPLIED PHYSICS, vol.129, no.15, 2021 (Journal Indexed in SCI)
- II. **Optical detection of microplastics in water**
Iri A. H. , Shahrhah M. H. A. , Ali A. M. , Qadri S. A. , ERDEM T., ÖZDÜR İ. T. , İÇÖZ K.
ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH, 2021 (Journal Indexed in SCI)
- III. **Osmotic-Pressure-Induced Nematic Ordering in Suspensions of Laponite and Carboxy Methyl Cellulose**
Xu P., YAZICI A. F. , ERDEM T., Lekkerkerker H. N. W. , MUTLUGÜN E., Eiser E.
JOURNAL OF PHYSICAL CHEMISTRY B, vol.124, no.42, pp.9475-9481, 2020 (Journal Indexed in SCI)
- IV. **A simple approach to prepare self-assembled, nacre-inspired clay/polymer nanocomposites**
Xu P., Erdem T., Eiser E.
SOFT MATTER, vol.16, no.23, pp.5497-5505, 2020 (Journal Indexed in SCI)
- V. **Transparent Films Made of Highly Scattering Particles**
Erdem T., Yang L., Xu P., ALTINTAS Y., O'Neil T., Caciagli A., Ducati C., MUTLUGÜN E., Scherman O. A. , Eiser E.
LANGMUIR, vol.36, no.4, pp.911-918, 2020 (Journal Indexed in SCI)
- VI. **Multiplexed patterning of cesium lead halide perovskite nanocrystals by additive jet printing for efficient white light generation**

ALTINTAS Y., TÖRÜN İ., YAZICI A. F. , Beskazak E., ERDEM T., ÖNSES M. S. , MUTLUGÜN E.
CHEMICAL ENGINEERING JOURNAL, vol.380, 2020 (Journal Indexed in SCI)

- VII. **Ultrathin Highly Luminescent Two-Monolayer Colloidal CdSe Nanoplatelets**
Delikanli S., Yu G., Yeltik A., Bose S., ERDEM T., Yu J., Erdem O., Sharma M., Sharma V. K. , Quliyeva U., et al.
ADVANCED FUNCTIONAL MATERIALS, vol.29, no.35, 2019 (Journal Indexed in SCI)
- VIII. **Color-Enrichment Semiconductor Nanocrystals for Biorhythm-Friendly Backlighting**
ERDEM T., Demir H. V.
ZEITSCHRIFT FÜR PHYSIKALISCHE CHEMIE-INTERNATIONAL JOURNAL OF RESEARCH IN PHYSICAL CHEMISTRY & CHEMICAL PHYSICS, vol.232, pp.1457-1468, 2018 (Journal Indexed in SCI)
- IX. **Near-Unity Emitting Copper-Doped Colloidal Semiconductor Quantum Wells for Luminescent Solar Concentrators**
Sharma M., Gungor K., Yeltik A., Olutas M., Guzelturk B., Kelestemur Y., ERDEM T., Delikanli S., McBride J. R. , Demir H. V.
ADVANCED MATERIALS, vol.29, no.30, 2017 (Journal Indexed in SCI)
- X. **CdSe/CdSe_{1-x}Te_x Core/Crown Heteronanoplatelets: Tuning the Excitonic Properties without Changing the Thickness**
Kelestemur Y., Guzelturk B., Erdem O., Olutas M., ERDEM T., Usanmaz C. F. , Gungor K., Demir H. V.
JOURNAL OF PHYSICAL CHEMISTRY C, vol.121, no.8, pp.4650-4658, 2017 (Journal Indexed in SCI)
- XI. **Colloidal Nanocrystals Embedded in Macrocrytals: Methods and Applications**
Adam M., Gaponik N., Eychmueller A., ERDEM T., Soran-Erdem Z., Demir H. V.
JOURNAL OF PHYSICAL CHEMISTRY LETTERS, vol.7, no.20, pp.4117-4123, 2016 (Journal Indexed in SCI)
- XII. **High-Stability, High-Efficiency Organic Monoliths Made of Oligomer Nanoparticles Wrapped in Organic Matrix**
Soran-Erdem Z., ERDEM T., Gungor K., Pennakalathil J., Tuncel D., Demir H. V.
ACS NANO, vol.10, no.5, pp.5333-5339, 2016 (Journal Indexed in SCI)
- XIII. **Excitonic improvement of colloidal nanocrystals in salt powder matrix for quality lighting and color enrichment**
ERDEM T., Soran-Erdem Z., Kelestemur Y., Gaponik N., Demir H. V.
OPTICS EXPRESS, vol.24, no.2, 2016 (Journal Indexed in SCI)
- XIV. **Colloidal nanocrystals for quality lighting and displays: milestones and recent developments**
ERDEM T., Demir H. V.
NANOPHOTONICS, vol.5, no.1, pp.74-95, 2016 (Journal Indexed in SCI)
- XV. **Implementation of High-Quality Warm-White Light-Emitting Diodes by a Model-Experimental Feedback Approach Using Quantum Dot-Salt Mixed Crystals**
Adam M., ERDEM T., Stachowski G. M. , Soran-Erdem Z., Lox J. F. L. , Bauer C., Poppe J., Demir L. V. , Gaponik N., Eychmueller A.
ACS APPLIED MATERIALS & INTERFACES, vol.7, no.41, pp.23364-23371, 2015 (Journal Indexed in SCI)
- XVI. **Continuously Tunable Emission in Inverted Type-I CdS/CdSe Core/Crown Semiconductor Nanoplatelets**
Delikanli S., Guzelturk B., Hernandez-Martinez P. L. , ERDEM T., Kelestemur Y., Olutas M., Akgul M. Z. , Demir H. V.
ADVANCED FUNCTIONAL MATERIALS, vol.25, no.27, pp.4282-4289, 2015 (Journal Indexed in SCI)
- XVII. **Macrocrytals of Colloidal Quantum Dots in Anthracene: Exciton Transfer and Polarized Emission**
Soran-Erdem Z., ERDEM T., Hernandez-Martinez P. L. , Akgul M. Z. , Gaponik N., Demir H. V.
JOURNAL OF PHYSICAL CHEMISTRY LETTERS, vol.6, no.9, pp.1767-1772, 2015 (Journal Indexed in SCI)
- XVIII. **Sweet plasmonics: Sucrose macrocrytals of metal nanoparticles**
ERDEM T., Soran-Erdem Z., Hernandez-Martinez P. L. , Sharma V. K. , Akcali H., Akcali I., Gaponik N., Eychmueller A., Demir H. V.
NANO RESEARCH, vol.8, no.3, pp.860-869, 2015 (Journal Indexed in SCI)
- XIX. **Construction of multi-layered white emitting organic nanoparticles by clicking polymers**
Keita H., Guzelturk B., Pennakalathil J., ERDEM T., Demir H. V. , Tuncel D.
JOURNAL OF MATERIALS CHEMISTRY C, vol.3, no.39, pp.10277-10284, 2015 (Journal Indexed in SCI)

- XX. **Stable and efficient colour enrichment powders of nonpolar nanocrystals in LiCl**
ERDEM T., Soran-Erdem Z., Sharma V. K. , Kelestemur Y., Adam M., Gaponik N., Demir H. V.
NANOSCALE, vol.7, no.42, pp.17611-17616, 2015 (Journal Indexed in SCI)
- XXI. **Manganese Doped Fluorescent Paramagnetic Nanocrystals for Dual-Modal Imaging**
Sharma V. K. , Gokyar S., Kelestemur Y., ERDEM T., Unal E., Demir H. V.
SMALL, vol.10, no.23, pp.4961-4966, 2014 (Journal Indexed in SCI)
- XXII. **Energy-saving quality road lighting with colloidal quantum dot nanophosphors**
ERDEM T., Kelestemur Y., Soran-Erdem Z., Ji Y., Demir H. V.
NANOPHOTONICS, vol.3, no.6, pp.373-381, 2014 (Journal Indexed in SCI)
- XXIII. **Highly polarized light emission by isotropic quantum dots integrated with magnetically aligned segmented nanowires**
Uran C., ERDEM T., Guzelturk B., Perkgoz N. K. , Jun S., Jang E., Demir H. V.
APPLIED PHYSICS LETTERS, vol.105, no.14, 2014 (Journal Indexed in SCI)
- XXIV. **Comparative study of field-dependent carrier dynamics and emission kinetics of InGaN/GaN light-emitting diodes grown on (11 $\bar{2}$)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.
APPLIED PHYSICS LETTERS, vol.104, no.14, 2014 (Journal Indexed in SCI)
- XXV. **Tunable White-Light-Emitting Mn-Doped ZnSe Nanocrystals**
Sharma V. K. , Guzelturk B., ERDEM T., Kelestemur Y., Demir H. V.
ACS APPLIED MATERIALS & INTERFACES, vol.6, no.5, pp.3654-3660, 2014 (Journal Indexed in SCI)
- XXVI. **Morphology-Dependent Energy Transfer of Polyfluorene Nanoparticles Decorating InGaN/GaN Quantum-Well Nanopillars**
ERDEM T., Ibrahimova V., Jeon D., Lee I., Tuncel D., Demir H. V.
JOURNAL OF PHYSICAL CHEMISTRY C, vol.117, no.36, pp.18613-18619, 2013 (Journal Indexed in SCI)
- XXVII. **Color science of nanocrystal quantum dots for lighting and displays**
ERDEM T., Demir H. V.
NANOPHOTONICS, vol.2, no.1, pp.57-81, 2013 (Journal Indexed in SCI)
- XXVIII. **Large-Area (over 50 cm x 50 cm) Freestanding Films of Colloidal InP/ZnS Quantum Dots**
Mutlugun E., Hernandez-Martinez P. L. , Eroglu C., Coskun Y., Erdem T., Sharma V. K. , Unal E., Panda S. K. , Hickey S. G. , Gaponik N., et al.
NANO LETTERS, vol.12, no.8, pp.3986-3993, 2012 (Journal Indexed in SCI)
- XXIX. **Computational study of power conversion and luminous efficiency performance for semiconductor quantum dot nanophosphors on light-emitting diodes**
ERDEM T., Nizamoglu S., Demir H. V.
OPTICS EXPRESS, vol.20, no.3, pp.3275-3295, 2012 (Journal Indexed in SCI)
- XXX. **Quantum dot integrated LEDs using photonic and excitonic color conversion**
Demir H. V. , Nizamoglu S., Erdem T., Mutlugun E., Gaponik N., Eychmueller A.
NANO TODAY, vol.6, no.6, pp.632-647, 2011 (Journal Indexed in SCI)
- XXXI. **Warm-white light-emitting diodes integrated with colloidal quantum dots for high luminous efficacy and color rendering: reply to comment**
Nizamoglu S., ERDEM T., Sun X. W. , Demir H. V.
OPTICS LETTERS, vol.36, no.15, pp.2852, 2011 (Journal Indexed in SCI)
- XXXII. **High scotopic/photopic ratio white-light-emitting diodes integrated with semiconductor nanophosphors of colloidal quantum dots**
Nizamoglu S., ERDEM T., Demir H. V.
OPTICS LETTERS, vol.36, no.10, pp.1893-1895, 2011 (Journal Indexed in SCI)
- XXXIII. **White-Emitting Conjugated Polymer Nanoparticles with Cross-Linked Shell for Mechanical Stability and Controllable Photometric Properties in Color-Conversion LED Applications**
Park E., ERDEM T., Ibrahimova V., Nizamoglu S., Demir H. V. , Tuncel D.
ACS NANO, vol.5, no.4, pp.2483-2492, 2011 (Journal Indexed in SCI)
- XXXIV. **Semiconductor nanocrystals as rare-earth alternatives**

ERDEM T., Demir H. V.

NATURE PHOTONICS, vol.5, no.3, pp.126, 2011 (Journal Indexed in SCI)

XXXV. **Warm-white light-emitting diodes integrated with colloidal quantum dots for high luminous efficacy and color rendering**

Nizamoglu S., ERDEM T., Sun X. W. , Demir H. V.

OPTICS LETTERS, vol.35, no.20, pp.3372-3374, 2010 (Journal Indexed in SCI)

XXXVI. **A photometric investigation of ultra-efficient LEDs with high color rendering index and high luminous efficacy employing nanocrystal quantum dot luminophores**

ERDEM T., Nizamoglu S., Sun X. W. , Demir H. V.

OPTICS EXPRESS, vol.18, no.1, pp.340-347, 2010 (Journal Indexed in SCI)

Books & Book Chapters

I. **Color Science and Photometry for Lighting with LEDs and Semiconductor Nanocrystals**

ERDEM T., DEMİR H. V.

Springer, Singapore, 2019

Refereed Congress / Symposium Publications in Proceedings

I. **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, United States Of America, 23 - 27 September 2012, pp.477-478

II. **Power conversion and luminous efficiency performance of nanophosphor quantum dots on color-conversion LEDs for high-quality general lighting**

ERDEM T., Nizamoglu S., Demir H. V.

Conference on Light-Emitting Diodes - Materials, Devices, and Applications for Solid State Lighting XVI, San-Francisco, Costa Rica, 24 - 26 January 2012, vol.8278

III. **Non-radiative energy-transfer-driven quantum dot LEDs**

Guzelturk B., ERDEM T., Unal E., Nizamoglu S., Tuncel D., Demir H. V.

23rd Annual Meeting of the IEEE Photonics-Society, Colorado, United States Of America, 7 - 11 November 2010, pp.146-147

Citations

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