

CV - SUMMARY

Published journals (selected):

Nature, Nature Materials (4), JACS, PRL, Physical Review B (6), Nano Letters (2), ACS Nano, ACS Energy Letters, ACS Sensor, Advanced Materials (3), Advanced Functional Materials, Analytical Chemistry (4), Applied Physics Letters (10), ACS Applied Materials and Interfaces (7), Optics Express (4), Applied Optics (4)

Number of articles:

+100 articles in high-impact journal

Patents: 8 (3 licensed)

Awards:

- Alexander von Humboldt, Friedrich Wilhelm Bessel Research Prize
- Turkish Academy of Sciences Young Scientists Award
- The Turkish Scientific and Technical Research Council Award
- OSA New Focus Student Award

Grants:

ERC Starting (Consolidator) Grant (1st ERC grant from Turkey)
ERC Proof of Concept
13 Academic and Industry Grants (>20M USD)

Teaching evaluation:

Student evaluation score: 4.4/5.0 (over 33 courses)

Student supervision: 30 PhD/MS thesis

Talks: >100 (45 invited)

Citations: ~8257, h-index: 47 (Scholar)

Significant scientific contributions:

- In-fiber multimaterial devices and sensors
- A new top-down nanofabrication technique
- Fiber-based digital photonic nose/sensor
- A new propagation mechanism for light

Current research subjects:

- Nanoscale materials and sensors
- Top-down nanofabrication toolkit
- Biocompatible electroactive nanomaterials and sensors
- Nanomaterials for X-ray sensing and imaging
- Perovskite photonics
- Nanostructured fibers for additive manufacturing
- Slow-light nanostructures
- Multifunctional fiber probes for optogenetics

www.mehmetbayindir.com

BIOGRAPHY

PROFESSOR MEHMET BAYINDIR



Dr. Bayindir received his PhD degree in Physics from Bilkent University in 2002. During the PhD studies, he focused on the physics and applications of photonic band gap materials. In particular, his works on the coupled-cavity structures (slow-light) in photonic crystals have attracted considerable interests since the early 2000s.

Dr. Bayindir worked as a postdoctoral researcher and later as a research scientist at the Research Laboratory of Electronics at the Massachusetts Institute of Technology (MIT) with Prof. Yoel Fink and Prof. John Joannopoulos. He has contributed to the development of a new fabrication technique that enabled the integration of active multimaterial in-fiber devices composed of metal, insulator and semiconducting domains for the first time. This breakthrough earned critical acclaim and recognition and resulted in 5 publications in Nature, Nature Materials, and Advanced Materials, and 3 directly related patents issued (all licensed). This research provided the foundation for a multi-material fiber concept and is considered a milestone in thermally drawn fiber technology for its potential in advanced fiber devices and functional fabrics.

Upon his return to Turkey, Dr. Bayindir undertook (together with Prof. Salim Ciraci) took on the role of establishing state of the art National Nanotechnology Research Center (UNAM), and served as the Deputy Director of UNAM from 2006-2013, and later as Director until 2016.

The synergy of some 400 world-class researchers and staff, made UNAM one of the top research centers in the region during his tenure. Dr. Bayindir also initiated and directed the Materials Science and Nanotechnology Graduate Programs at UNAM, which have attracted more than 110 graduate students from 13 countries.

Dr. Bayindir's research group has worked on micro- and nanoscale materials and their applications, including photonic bandgap fibers, top down nanofabrication toolkit, piezoelectric polymer nanowires, functional nanostructured surfaces, nanoscale photonics, fiber-based devices and sensors (including digital photonic nose, and optoacoustic microphones), and active fibers for fiber lasers. His group is at the forefront of multimaterial fiber nanostructures and sensors. In addition, his group has made significant contributions to micro- and nanosensors and nanomaterials for sensors in diverse applications ranging from explosive detection, toxic industrial gas detection, and chemical and biological molecule sensing. Dr. Bayindir has been awarded 20 millions USD in grants through international and national projects. His research output has been highlighted by international news outlets including Reuters and Newsweek.

Dr. Bayindir is the author of more than 100 articles published in high-impact journals, and more than 40 peer-reviewed conference papers. He also holds 4 US (3 licensed), 2 WO, 1EU, 2 Turkish patents. In addition, he has served as an editor of Nature Scientific Reports journal and is a reviewer for many scientific journals including Nature Materials, Nature Communications, Advanced Materials, Nano Letters, ACS Materials Letters, ACS Nano, Physical Review Letters. 30 students have completed their MS or PhD thesis under his supervision, some of whom have been accepted to the top schools in the world, including MIT, University of Cambridge, and National University of Singapore.

Dr. Bayindir was the recipient of the 2001 New Focus Award from the Optical Society of America. He won the Young Scientist Award of the Turkish Scientific and Technical Research Council (TUBITAK) in 2006 and The Young Scientist Award of the Turkish Academy of Sciences (TUBA) in 2007. In 2012, Dr. Bayindir received the prestigious European Research Council-ERC Starting (consolidator section) grant (the first ERC grant awarded to Turkey). Later, he has been awarded an ERC Proof of Concept grant to support the commercialization of piezo nanosystems developed in ERC-funded research for smart skin, cardiac sensors, and energy harvesting applications. He received the Alexander von Humboldt Friedrich Wilhelm Bessel Research Award in 2020.

Dr. Bayindir's laboratories were closed and all of his projects including two ERC grants were suspended after the 2016 coup attempt in Turkey. Soon after, he was dismissed from Bilkent University without any wrongdoing. In addition, he was banned from working in academic institutions and his passport was canceled indefinitely. After losing his job in academia, he worked at Eryigit Group companies as the General Coordinator where he established/restructured several units including international sales, and R&D center. He also developed a low-temperature hydrogen peroxide sterilizer with the brand name S-Max. In 2020, Dr. Bayindir was cleared of all allegations and he was finally able to move to Germany to join his family.

Currently, Dr. Bayindir is an Alexander von Humboldt Fellow at Universität Hamburg and works as a visiting professor with Prof. Robert Blick at the Center for Hybrid Nanostructures. Recently, he has started a collaboration with Prof. Osman Bakr from KAUST on perovskite nanomaterials, and established a specialty multimaterial fiber production facility to conduct researches on nanophotonic scintillating fibers for high-energy radiation (X-ray, Gamma rays) sensing and imaging, nanostructured fibers for additive manufacturing, and multimaterial fibers for solar cell and optoelectronic applications.

CURRICULUM VITAE

Professor Mehmet BAYINDIR

1. PERSONAL DATA

- Birth date and place: 1975, Ermenek, Turkey
- Address: Bernadottestraße 150B, 22605 Hamburg, Germany
- E-mail: mehmet.bayindir@uni-hamburg.de
- Webpage: <http://www.mehmetbayindir.com>

2. ACADEMIC DEGREES

- Professor, Bilkent University 03/2014
- Associate Prof., Bilkent University 03/2012
- Assistant Prof., Bilkent University 02/2006
- Ph. D., Physics, Bilkent University 06/2002
- M.S., Physics, Bilkent University 08/1997
- B.S., Physics, Bilkent University 06/1995

3. EMPLOYMENT HISTORY

- 01/23- : Scientific Consultant, KAUST
- 02/20- : Alexander von Humboldt Fellow, V. Professor, Universität Hamburg
- 07/19- : President, 4U Nanotechnologies Inc.
- 03/18-04/19: General Coordinator, Eryigit Medical Inc.
- 03/14-10/16: Professor, Bilkent University, Department of Physics
- 02/13-12/15: Director, UNAM-National Nanotechnology Research Center, Bilkent University
- 02/13-12/15: Director, Institute of Materials Science and Nanotechnology, Bilkent University
- 02/13-12/15: Director, Graduate Programs in Mat. Science and Nanotechnology, Bilkent University
- 01/08-02/13: Deputy Director, Institute of Materials Science and Nanotechnology, Bilkent University
- 01/08-02/13: Deputy Director, UNAM-National Nanotechnology Research Center, Bilkent University
- 01/08-02/13: Deputy Director, Graduate Programs in Mat. Science and Nanotech., Bilkent University
- 03/12-03/14: Associate Professor, Bilkent University, Department of Physics
- 02/06-03/12: Assistant Professor, Bilkent University, Department of Physics
- 05/05-02/06: Research Scientist, Massachusetts Institute of Technology, Research Laboratory of Electronics
- 06/02-05/05: Postdoctoral Research Associate, Massachusetts Institute of Technology, Research Laboratory of Electronics

4. PROFESSIONAL AWARDS

- Friedrich Wilhelm Bessel Research Award, Alexander von Humboldt 2020
- European Research Council-ERC Proof of Concept Grant Award 2016
- European Research Council-ERC Starting Grant Award 2012
- The Young Scientists Award of Turkish Academy of Sciences (TUBA) 2007
- The Turkish Scientific and Technical Research Council (TUBITAK) Award 2006
- MIT Best Poster Award 2005
- Optical Society of America (OSA) New Focus Student Award 2001

5. HONORS, SCHOLARLY AND PROFESSIONAL DUTIES AND ACHIEVEMENTS

- Refereeing for journals including Nature Materials, Nature Communications, Materials Today, Advanced Materials, ACS Nano, Nano Letters, Advanced Functional Materials, Physical Review Letters, Applied Physics Letters, Optics Letters, Physical Review B, Physical Review A, Physical Review E, Optics Express, Journal of Applied Physics, IEEE Journal of Quantum Electronics, IEEE Photonic Technology Letters, Optics Communications, ACS Applied Materials and Interfaces, Langmuir, Small, Nanoscale, ACS Inorganic Chemistry, Journal of Colloid and Interface Science, Polymer Chemistry, AIP Advances, Scientific Reports 2000-Present

- FP7 NMP delegate of Turkey: Nanotechnology, Materials Science and New Production
2007-2008
- Member of Panel on the review of projects submitted to State Planning Organization of Turkey
2008-2016
- Member of Panel on the review of projects submitted to The Turkish Scientific and Technical Research Council
2006-2016
- Editorial Board Member, Scientific Reports, Nature Publishing Group
2012-2017
- Reviewer for ERC grants, European Research Council (ERC)
- Board member of national and international conferences

6. SELECTED INVITED LECTURES AND INVITED TALKS

1. *Giant negative electrostriction effect in ferroelectric polymer nanostructures*, University of Hamburg, Nanoscience Colloquium, 5 April 2022.
2. *Transforming traditional fiber drawing into highly sophisticated NANOMANUFACTURING TOOLBOX: Kilometer-long nanostructures for photonics, electronics, mechanics*, Hamburg University of Technology, Hamburg, Germany 23 March 2021.
3. [Keynote speaker] *Multi-material fibers for smart textile: Current status, challenges, and future directions*, Aachen University, Germany, 2018.
4. *Extremely-long Nanostructures for Photonics and Electronics*, Aarhus University, Denmark, 25 September 2017.
5. *Micro and Nanostructured Fibers for Smart Surfaces, Triboelectric/Piezoelectric Energy Harvesting and Sensing*, MRS Spring Meeting, Phoenix, 16-22 April 2017.
6. *Kilometers-Long Piezoelectric Polymer Nanoribbon Arrays for Sensing and Energy Generation*, MRS Spring Meeting, Phoenix, 16-22 April 2017.
7. *Fiber-based micro and nano-devices for sensing and energy harvesting*, KAUST, Saudi Arabia, 29 March 2017.
8. *Piezoelectric Polymer Nanoribbons Produced by Iterative Size Reduction Technique for Electronic Skin, Artificial Hand and Electro Cardiac Devices*, 17 June 2016, NGPT Workshop, Rome, Italy.
9. *Realization of a novel nanofabrication scheme: Producing kilometer-long nanostructures*, UNIDO Workshop, UNAM, Ankara, 17 June 2015
10. *Excellence in Science – ERC Enables Young Researchers*, ERC, TÜBİTAK, TÜBA, İstanbul, 29 August 2014.
11. *ERC-Grantees Conference 2014, Frontiers in Chemistry – The Basis for Advanced Materials*, Berlin, Germany, 28 August 2014.
12. *A novel nanofabrication technique by thermal size reduction*, Turkish Physical Society Annual Meeting, İstanbul, 2013.
13. *A new top-to-bottom fabrication technique in nanotechnology: producing kilometer long insulating, piezoelectric, and semiconducting nanostructures*, KAUST, Jeddah, Saudi Arabia, 20 September 2013.
14. *Nanostructured sensors: Large-area nanowire circuitry and digital optoelectronic nose*, UNIDO Workshop, Ankara, 25 Jun-08 Jul 2012.
15. *A New Top-To-Bottom Nanofabrication Technique*, Applications of Nanotechnology in Industry, Opportunity of Integration among IDB Member States, Egypt, 29–31 January 2012.
16. *Nanotechnology for a Sustainable Development*, Applications of Nanotechnology in Industry, Opportunity of Integration among IDB Member States, Egypt, 29–31 January 2012.
17. [Keynote speaker] *Nanotechnology: Engineering a better future*, 4th Wief-UITM Global Discourse on Nanotechnology, Kuala Lumpur, Malesia, October 14, 2011.
18. *A new fabrication technique in nanotechnology*, Nanotechnology Informatics and New Economic Paradigms, Applied Econometrics Association, Ankara, October 2010
19. *Nanomaterials, nanofibers, nanodevices for sensing applications*, Ankara University, Ankara, April 2010.
20. *Nanotechnology in defense*, ANSAF'10, Ankara, October 2010.
21. *New trends in nanotechnology*, Turkish Physical Society, Bodrum, 2009.
22. *Nanomaterials, nanofibers and nanodevices for sensing applications*, İstanbul Technical University, İstanbul, 2009
23. *Investigation of nanophotonic structures*, National Spectroscopy Congress, Ankara, 2009.
24. *Nanomaterials, nanofibers and nanodevices for sensing applications*, Koc University, İstanbul, 2009

25. *Nanotechnology and photovoltaics*, Istanbul Chamber of Industry, Istanbul, 2008.
26. *Novel fibers and fiber-based devices*, Optics Summer School, Middle East Technical University, Ankara, 2008.
27. *Nanophotonics*, Nanoscience and Nanotechnology Conference III, Ankara, 2007.
28. *A new fabrication technique in nanotechnology*, Istanbul Technical University, Istanbul, 2007.
29. *Nanotechnology tools for defense applications*, Nanoscience and Nanotechnology Conference III, Ankara, 2007.
30. *A new fabrication technique: Kilometer-long nanostructures*, Nanoscience and Nanotechnology Conference II, Ankara, 2006.
31. *Nanotechnology and wearable intellegent fiber sensors*, Hacettepe University, Ankara, 2006.
32. *Multifunctional fiber-based sensors: Future smart fabrics*, Department of Defense, Ankara, 2006.
33. *Nanotechnology and wearable intellegent fiber sensors*, Ankara University, Ankara, 2006.
34. *Wearable intellegent fiber sensors*, Middle East Technical University, Ankara, 2006.
35. *Recent progress in meso-structured fibers and fiber devices*, SPIE Photonics West, San Jose, CA, 2005.
36. *Multi-functional fabrics and fabric systems for medical and military applications*, Bilkent University, Ankara, 2005.
37. *Thermal-sensing mesoscopic fiber devices by composite material processing*, SPIE Optics East, Boston, MA, 2005.
38. *A novel fabrication technique by composite material processing: Multi-functional fabrics and fabric systems for medical and military applications*, Koc University, Istanbul, 2005.
39. *Novel optoelectronic fibers and fiber devices: From raw materials to functional devices*, SPIE Optics East, Philadelphia, 2004.
40. *Coupled-cavity structures in photonic crystals*, MRS Meeting, San Francisco, CA, 2002.

7. TEACHING

- **Student Evaluation Score:**
 - 4.4/5.0 (over 33 courses)
- **Graduate Courses:**
 - Theoretical and Experimental Foundations of Nanophotonics, Bilkent University
 - Fundamentals of Nanoscience, Bilkent University
 - Selected Topics in Materials Science and Nanotechnology, Bilkent University
 - Nanostructure Physics I, Universität Hamburg
- **Undergraduate Courses:**
 - General Physics I, Bilkent University
 - General Physics II, Bilkent University
 - Physics for Poets, Bilkent University
 - Quantum Mechanics Laboratory, Bilkent University
 - Numerical Methods in Physics, Bilkent University
 - Solid State Physics, Universität Hamburg (Recitation)

8. GRADUATE STUDENT SUPERVISION

SUPERVISED PHD STUDENTS:

	Name	Current Institution	Year Graduated	Thesis Title
1	Pınar Beyazkılıç	University of California San Diego	2018	Nanomaterials for chemical/biomedical sensing and functional surface applications

2	Pelin Tören	OSTIM Technical University, Asst. Prof.	2016	Biological sensing applications of ultra high quality factor microtoroidal optical resonators with high sensitivity and selectivity
3	Mehmet Kanık	MIT	2015	Nanostructured materials and devices for sensing and energy harvesting applications
4	Adem Yildirim	Oregon Health and Science University, Asst. Prof.	2014	Nanostructured materials for biological imaging and chemical sensing
5	Erol Özgür	Arizona State University	2014	Design and development of novel large scale applications in micro/nanophotonics and nanobiotechnology
6	Ozan Aktaş	University of Cambridge	2014	Chalcogenide micro and nanostructures and applications
7	Tural Khudiyev	National University of Singapore, Asst. Prof.	2013	Fabrication of core-shell nanostructures for photonics applications
8	Hülya Budunoğlu	Aselsan / Turkey	2012	Organically modified silica based nanomaterials for functional surfaces
9	Ersin Hüseyinoğlu	Bilkent University	continuing student	Utilization of whispering gallery mode chalcogenide resonators for nonlinear and lasing applications
10	Bihter Dağlar	Bilkent University	deceased	AAO membranes for nanoscale templates, ordered arrays and surfaces

SUPERVISED MS STUDENTS:

	Name	Current Institution	Year Graduated	Thesis Title
1	Ahmet Faruk Yavuz	TUBITAK Space Technologies Research Institute	2017	Large-area triboelectric nanogenerators
2	Mehmet Girayhan Say	MIT	2016	Nanowire and nanoribbons for flexible and bio-inspired electronics applications
3	Abubakar Isa Adamu	Technical University of Denmark	2016	Binary coded identification of industrial chemical vapors with optofluidic nose
4	Abba Usman Saleh	Tampere University	2016	Development of multicore and tapered chalcogenide fibers for supercontinuum generation
5	Muhammad Yunusa	Max Planck Institute for Intelligent Systems	2015	Three-dimensional control of liquid spreading and transport with textured polymer fibers
6	Bekir Türedi	ETH, Switzerland	2015	Nonlinear optics in nanostructures fiber bundles
7	Urandelger Tuvshindorj	Merln Institute, The Netherlands	2015	Organically modified silica nanostructures based functional coatings for practical applications
8	E. Fahri Öztürk	University of Bonn	2014	Artificial olfaction with hollow core bragg fiber arrays
9	Tamer Doğan	University of Twente	2014	Bio-inspired all-polymer photonic crystal fibers
10	Pınar Beyazkılıç	University of California San Diego	2013	Formation of pyrene excimers in mesoporous organically modified silica thin films for visual detection of nitroaromatic explosives
11	Muhammet Halit Dolaş	METU	2013	Light scattering from core-shell nano-structures: Structural coloration
12	Muhammet Çelebi	Tubitak Space Technologies Research Institute	2013	Silicon nanocrystal doped polymer nanowire arrays

13	Hüseyin Duman	Roketsan	2013	Design and fabrication of resonant nanoantennas on chalcogenide glasses for nonlinear photonic applications
14	Özlem Köylü	University of Delaware	2011	Polymer/glass hollow-core photonic band gap fibers for infrared laser beam delivery
15	Murat C. Kılınç	Aselsan	2010	Resonant plasmonics nanoantennas
16	Adem Yildirim	Oregon Health and Science University, Asst. Prof.	2009	Aerogel thin films for TNT sensing
17	Kemal Gürel	Garanti Bankası	2009	Coupled surface plasmon structures and applications
18	Y. Nuri Ertaş	Erciyes University, Asst. Prof.	2009	Microfluidics for plasmonic sensors and electromagnetic applications
19	Mert Vural	University of Maryland, College Park	2009	Hollow core photonic bandgap fibers for medical applications
20	Duygu Akbulut	University of Twente	2009	Lasing action and supercontinuum generation in nano- and micro-structures
21	Özlem Şenlik	Duke University	2008	Micro- and nano-structured devices for thermal analysis and plasmonic applications
22	Ozan Aktaş	University of Cambridge	2008	Multi-frequency fluxgate magnetic force microscopy

9. PATENTS

1. Nanostructured multimaterial perovskite scintillating fibers for conformal X-ray imaging, M. Bayindir, O. M. Bakr, B. Saidzhonov, K. Yorov, T. Ahmad, S. Nematulloev, A. Karluk, *in preparation*, 2024.
2. Perovskite scintillating fibers for additive manufacturing, M. Bayindir, O. M. Bakr, B. Saidzhonov, K. Yorov, T. Ahmad, S. Nematulloev, A. Karluk, *in preparation*, 2024.
3. Household appliance component comprising a base element with a functional coating, Maria Carmen Artal Lahoz, Mehmet Bayindir, Miguel Angel Bunuel Magdalena, Cristina Castro Lapetra, Bihter Daglar, Tugba Dispınar, Elena Martinez Solanas, Javier Sanz Naval, Adem Yildirim, Murat Yücel, Dilara Öksüz, EP3324813B1, 2019.
4. Household appliance component comprising a base element with a functional coating, Maria Carmen Artal Lahoz, Mehmet Bayindir, Miguel Angel Bunuel Magdalena, Cristina Castro Lapetra, Bihter Daglar, Tugba Dispınar, Elena Martinez Solanas, Javier Sanz Naval, Adem Yildirim, Murat Yücel, Dilara Öksüz, PCT, WO2017012968A1, 2017.
5. Piezoelectricity PVDF materials and method for making the same, M. Bayindir, M. Kanik, US Patent App. 14/828,524, 2017.
6. Cellulose Based Sensor for Detection of Nitroaromatic Explosives, Turkey, Patent Application No. 2015/04051, April, 2015, M. Bayindir, G. B. Demirel, B. Daglar
7. Thermal-sensing fiber devices with semiconducting element, M. Bayindir, F. Sorin, A. Abouraddy, O. Shapira, J. R. Arnold, Y. Fink, J. D. Joannopoulos, PCT, WO2007038718A1, 2007.
8. Optoelectronic fiber photodetector, M. Bayindir, F. Sorin, A. F. Abouraddy, D. S. Hinczewski, O. Shapira, J. Arnold, J. F. Viens, Y. Fink, J. Joannopoulos, PCT, WO2006014360A2, 2006.
9. Thermal sensing fiber devices, M. Bayindir, F. Sorin, A. F. Abouraddy, O. Shapira, J. Arnold, Y. Fink, J. D. Joannopoulos, U.S. Patent No: 7567740, Issued: Jul. 28, 2009. [licensed]
10. Optoelectronic fiber codrawn from conducting, semiconducting, and insulating materials, M. Bayindir, F. Sorin, D. S. Hinczewski, S. D. Hart, Y. Fink, J. D. Joannopoulos, U.S. Patent No: 7295734, Issued: Nov. 13, 2007. [licensed]
11. Optoelectronic fiber photodetector, M. Bayindir, F. Sorin, A. F. Abouraddy, D. S. Hinczewski, O. Shapira, J. Arnold, J. F. Viens, Y. Fink, J. D. Joannopoulos, U.S. Patent No: 7292758, Issued: Nov. 6, 2007. [licensed]
12. Integrated fibres for self-monitored optical transport, M. Bayindir, O. Shapira, D. S. Hinczewski, J. Viens, A. F. Abouraddy, J. D. Joannopoulos, Y. Fink (2005).

10. SCHOLARLY PUBLICATIONS

Ph.D. Dissertation

1. Mehmet Bayindir, Physics and Applications of Coupled-Cavity Structures in Photonic Crystals, Bilkent University, 2002.

Published Books

1. Mehmet Bayindir, *Mekanik Problemleri (Challenging problems in classical mechanics)* [in Turkish] (263 pages, 4th printing, TUBITAK, Ankara, 2001).

[Corresponding author(s) and/or first author is in **bold face**]

Review Articles

1. P. Toren, E. Ozgur, and **M. Bayindir**, *Oligonucleotide based label-free detection with optical microresonators: Strategies and challenges*, Lab on a Chip, volume 16, page 2572 (2016).
2. A. F. Abouraddy, M. Bayindir, G. Benoit, S. D. Hart, K. Kuriki, N. Orf, O. Shapira, F. Sorin, B. Temelkuran, Y. Fink, *Towards multimaterial multifunctional fibres that see, hear, sense and communicate*, Nature Materials, volume 6, page 336 (2007).
3. **M. Bayindir**, A. F. Abouraddy, O. Shapira, J. Viens, D. Saygin-Hinczewski, F. Sorin, J. Arnold, J. D. Joannopoulos, and Y. Fink *Kilometer-long ordered nanophotonic devices by preform-to-fiber fabrication*, IEEE Selected Topics in Quantum Electronics, Nanophotonics special issue, volume 12, 1202 (2006).

Articles in Refereed Journals (Submitted or in preparation)

1. K. E. Yorov, S. Nematulloev, B. M. Saidzhonov, M. S. Skorotetcky, A. A. Karluk, B. Hasanov, L. Gutiérrez-Arzaluz, W. J. Mir, T. Sheikh, M. E. M. Phielepeit, R. H. Blick, N. Ashraf, O. F. Mohammed, **M. Bayindir**, and **O. M. Bakr**, Controlled Synthesis of Terbium-Doped Colloidal Gd₂O₂S Nanoplatelets Enables High-Performance X-ray Scintillators, ACS Nano, *under review* (2024).
2. **M. Kanik**, M. G. Say, D. A. E. Acar, H. S. Sen, O. M. Bakr, and **M. Bayindir**, Giant negative electrostriction in polymer nanofibers enables high-performance electromechanical sensory platforms, submitted (2024).
3. **M. Bayindir**, **O. M. Bakr**, *et al.*, Nanocluster glass fibers, in preparation (2024).
4. **M. Bayindir**, **O. M. Bakr**, *et al.*, Glassy perovskite array transparent silicon scintillators, to be submitted (2024).
5. **M. Bayindir**, **O. M. Bakr**, *et al.*, Slow-light nanostructures for high-performance X-ray scintillating imaging, in preparation (2024).
6. A. F. Yavuz, **H. T. Baytekin**, and **M. Bayindir**, Large-area nanostructured polymer films for high-performance triboelectric floor tiles, in preparation (2024).

Articles in Refereed Journals (SCI journals)

7. C. Dong, X. Song, Y. Yuan, L. Gutiérrez-Arzaluz, P. Yuan, S. Nematulloev, B. Hasanov, **M. Bayindir**, O. F. Mohammed, and **O. M. Bakr**, Organic-inorganic hybrid glasses of atomically precise nanoclusters, Journal of the American Chemical Society, 10.1021/jacs.3c12296 (2024).
8. B. Saidzhonov, K. Yorov, P. Yuan, S. Nematulloev, A. Karluk, T. Ahmad, O. F. Mohammed, **O. M. Bakr**, and **M. Bayindir**, Multimaterial fibers enable three-dimensional scintillators for large-area conformal X-ray imaging, ACS Materials Letters, 10.1021/acsmaterialslett.3c01359 (2024) (*Selected as the front cover*).
9. P. Yuan, T. He, Y. Zhou, J. Yin, H. Zhang, Y. Zhang, X. Yuan, C. Dong, R. Huang, W. Shao, S. Chen, X. Song, R. Zhou, N. Zheng, M. Abulikemu, M. Eddaoudi, **M. Bayindir**, **O. F. Mohammed**, and **O. M. Bakr**, Hybrid thermally activated nanocluster fluorophores for X-ray scintillators, ACS Energy Letters, volume 8, page 5088 (2023).
10. H. Wang, J.-X. Wang, X. Song, T. He, Y. Zhou, O. Shekhah, L. Gutiérrez-Arzaluz, M. Bayindir, M. Eddaoudi, O. M. Bakr, and O. F. Mohammed, Copper organometallic iodide arrays for efficient X-ray imaging scintillators, ACS Central Science, volume 9, page 668 (2023).

11. P. Beyazkılıç, A. Saateh, M. Bayındır, and C. Elbuken, Evaporation-induced biomolecule detection on versatile superhydrophilic patterned surfaces: Glucose and DNA assay, *ACS Omega*, volume 3, page 13503 (2018).
12. P. Toren, E. Özgür, and **M. Bayındır**, Label-free optical biodetection of pathogen virulence factors in complex media using microtoroids with multifunctional surface functionality, *ACS Sensors*, volume 3, page 352 (2018).
13. B. Dağlar, G. B. Demirel, and **M. Bayındır**, Fluorescent paper strips for highly sensitive and selective detection of nitroaromatic analytes in water samples, *ChemistrySelect*, volume 2, page 7735 (2017).
14. O. Aktas and **M. Bayındır**, Tapered nanoscale chalcogenide fibers directly drawn from bulk glasses as optical couplers for high index resonators, *Applied Optics*, volume 56, page 385 (2017).
15. M. Yunusa, F. E. Öztürk, A. Yıldırım, U. Tuvshindorj, M. Kanik, and **M. Bayındır**, Bio-inspired hierarchically structured polymer fibers for anisotropic non-wetting surfaces, *RSC Advances*, 7, 15553 (2017).
16. M. Kanik, M. Marcali, M. Yunusa, C. Elbuken, and **M. Bayındır**, Continuous triboelectric power harvesting and biochemical sensing inside poly(vinylidene fluoride) hollow fibers using microfluidic droplet generation, *Advanced Materials Technologies*, volume 1, page 1600190 (2016).
17. A. I. Adamu, F. E. Öztürk, and **M. Bayındır**, Binary coded identification of industrial chemical vapors with an optofluidic nose, *Applied Optics*, volume 55, page 10247 (2016).
18. P. Toren, E. Özgür, and **M. Bayındır**, Oligonucleotide based label-free detection with optical microresonators: Strategies and challenges, *Lab on a Chip*, volume 16, page 2572 (2016).
19. P. Beyazkılıç, U. Tuvshindorj, A. Yıldırım, C. Elbuken, and **M. Bayındır**, Robust superhydrophilic patterning of superhydrophobic ORMOSIL surfaces for high-throughput on-chip screening applications, *RSC Advances*, volume 6, page 80049 (2016).
20. A. Yıldırım, M. Turkyaydin, B. Garıpcan, and **M. Bayındır**, Cytotoxicity of multifunctional surfactant containing capped mesoporous silica nanoparticles for combined chemotherapy and photodynamic therapy, *RSC Advances*, volume 6, page 32060 (2016).
21. M. Kanik, M. G. Say, B. Dağlar, A. F. Yavuz, M. Dolas, M. El-Ashry, and **M. Bayındır**, A motion and sound activated, 3d printed, chalcogenide based triboelectric nanogenerator, *Advanced Materials*, volume 27, page 2367 (2015). [Back cover story]
22. E. Özgür, P. Toren, O. Aktas, E. Hüseyinoglu, and **M. Bayındır**, Label-free biosensing with high selectivity in complex media using microtoroidal optical resonators, *Scientific Reports*, volume 5, 13173 (2015).
23. A. Yıldırım and **M. Bayındır**, Porosity difference based selective dissolution strategy to prepare shape-tailored hollow mesoporous silica nanoparticles, *Journal of Materials Chemistry A*, volume 3, page 3839 (2015).
24. T. Khudiyev and **M. Bayındır**, Nanospring harvest light more efficiently, *Applied Optics*, volume 54, page 8018 (2015).
25. P. Toren, E. Özgür, and **M. Bayındır**, Real-time and selective detection of single nucleotide DNA mutations using surface engineered microtoroids, *Analytical Chemistry*, volume 87, 10920 (2015).
26. T. G. Ulusoy, B. Dağlar, A. Yıldırım, A. Ghobadi, **M. Bayındır**, and A. K. Okyay, Enhanced performance of dye-sensitized solar cells by omnidirectional antireflective coatings, *Journal of Photonics for Energy*, volume 5, 053090 (2015).
27. M. Kanik, O. Aktas, H. S. Sen, E. Durgun, and **M. Bayındır**, Spontaneous high piezoelectricity in Poly(vinylidene fluoride) nanoribbons produced by iterative thermal size reduction technique, *ACS Nano*, volume 8, page 9311 (2014).
28. T. Khudiyev and **M. Bayındır**, Superenhancers: Novel opportunities for nanowire optoelectronics, *Scientific Reports*, volume 4, page 7505 (2014).
29. P. Beyazkılıç, A. Yıldırım, and **M. Bayındır**, Nanoconfinement of pyrene in mesostructured silica nanoparticles for trace detection of TNT in aqueous phase, *Nanoscale*, volume 6, page 15203 (2014).
30. B. Dağlar, G. B. Demirel, T. Khudiyev, T. Dogan, O. Tobail, S. Altuntas, F. Büyükserin, and **M. Bayındır**, Anemone-like nanostructures for non-lithographic, reproducible, large-area, and ultra-sensitive SERS substrates, *Nanoscale*, volume 6, page 12710 (2014).
31. F. E. Öztürk, A. Yıldırım, M. Kanik, and **M. Bayındır**, Photonic bandgap narrowing in conical hollow core Bragg fibers, *Applied Physics Letters*, volume 105, no 071102 (2014).

32. E. Ozgur, P. Toren, and **M. Bayindir**, Phosphonate based organosilane modification for a simultaneously protein resistant and bioconjugable silica surface, Journal of Materials Chemistry B, volume 2, page 7118 (2014).
33. T. Khudiyev, O. Tobail, and **M. Bayindir**, Tailoring self-organized nanostructured morphologies in kilometer-long polymer fiber, Scientific Reports, volume 4, article number 4864 (2014).
34. T. Khudiyev, T. Dogan, and **M. Bayindir**, Biomimicry of multifunctional nanostructures in the neck feathers of mallard (*Anas platyrhynchos* L.) drakes, Scientific Reports, volume 4, article number 4718 (2014).
35. T. Khudiyev, E. Huseyinoglu, and **M. Bayindir**, Non-resonant Mie scattering: Emergent optical properties of core-shell polymer nanowires, Scientific Reports, volume 4, article number 4607 (2014).
36. A. Yildirim, M. Yunusa, F. E. Ozturk, M. Kanik, and **M. Bayindir**, Surface textured polymer fibers for microfluidics, Advanced Functional Materials, volume 24, page 4569 (2014).
37. O. Aktas, E. Ozgur, O. Tobail, M. Kanik, E. Huseyinoglu, and **M. Bayindir**, A new route of fabricating on-chip chalcogenide microcavity resonator array, Advanced Optical Materials, volume 2, page 618 (2014).
38. P. Beyazkiloglu, A. Yildirim, and **M. Bayindir**, Formation of pyrene excimers in mesoporous ormosil thin films for visual detection of nitro-explosives, ACS Applied Materials and Interfaces, volume 6, page 4997 (2014).
39. A. Yildirim and **M. Bayindir**, Turn-on fluorescent dopamine sensing based on in situ formation of visible light emitting polydopamine nanoparticles, Analytical Chemistry, volume 86, page 5508 (2014).
40. U. Tuvshindorj, A. Yildirim, F. E. Ozturk, and **M. Bayindir**, Robust Cassie state of wetting in transparent superhydrophobic coating, ACS Applied Materials and Interfaces, volume 6, page 9680 (2014).
41. A. Yildirim, F. E. Ozturk, and **M. Bayindir**, A hollow-core infrared fiber array based optoelectronic nose for discrimination of ethanol and methanol in complex environments, Analytical Chemistry, volume 85, page 6384 (2013).
42. B. Daglar, T. Khudiyev, G. B. Demirel, F. Buyukserin, and **M. Bayindir**, Soft biomimetic tapered nanostructures for large-area antireflective surfaces and SERS sensing, Journal of Material Chemistry B, volume 1, page 7842 (2013).
43. A. Yildirim, G. B. Demirel, R. Erdem, B. Senturk, T. Tekinay, and **M. Bayindir**, Pluronic polymer capped biocompatible mesoporous silica nanocarriers, Chemical Communications, volume 49, page 9782 (2013).
44. G. B. Demirel, B. Daglar, and **M. Bayindir**, Extremely fast and highly selective detection of nitroaromatic explosive vapours by fluorescent polymer thin film, Chemical Communications, vol. 49, 6140 (2013).
45. F. B. Atar, E. Battal, L. E. Aygun, B. Daglar, M. Bayindir, and Ali K. Okyay, Plasmonically enhanced hot electron based photovoltaic device, Optics Express, volume 21, page 7196 (2013).
46. A. Yildirim, T. Khudiyev, B. Daglar, A. K. Okyay, and **M. Bayindir**, Superhydrophobic and omnidirectional antireflective surfaces from nanostructured ormosil colloids, ACS Applied Materials and Interfaces, volume 5, page 853 (2013) [*Highlighted in 2012 MRS Fall Meeting: Meeting Scene*].
47. A. Yildirim, E. Ozgur, and **M. Bayindir**, Impact of mesoporous silica nanoparticle surface functionality on hemolytic activity, thrombogenicity and non-specific protein adsorption, Journal of Material Chemistry B, volume 1, page 1909 (2013).
48. E. Ozgur, O. Aktas, M. Yaman, and **M. Bayindir**, Macroscopic assembly of indefinitely long and parallel nanowires into large area photodetection, Nano Letters, volume 12, page 2483 (2012) [*Selected in Optics 2012*].
49. H. Budunoglu, A. Yildirim, and **M. Bayindir**, Flexible and mechanically stable antireflective coatings from nanoporous organically modified silica colloids, Journal of Materials Chemistry, volume 22, page 9671 (2012).
50. M. Yaman, A. Yildirim, M. Kanik, T. C. Cinkara, and **M. Bayindir**, High selectivity boolean olfaction using hollow-core wavelength-scalable bragg fibers, Analytical Chemistry, volume 84, page 83 (2012).

51. M. Yaman, T. Khudiyev, E. Ozgur, M. Kanik, O. Aktas, E. O. Ozgur, H. Deniz, E. Korkut, **M. Bayindir**, *Arrays of indefinitely-long, uniform nanowire and nanotube*, Nature Materials, volume 10, page 494 (2011) [*Selected as cover*].
52. A. Yildirim, M. Vural, M. Yaman, and **M. Bayindir**, *Bio-inspired optoelectronic nose with nanostructured wavelength scalable hollow-core infrared fibers*, Advanced Materials, volume 23, page 1262 (2011) [*Selected as frontispiece*].
53. T. Khudiyev, E. Ozgur, M. Yaman, and **M. Bayindir**, *Size-dependent structural coloring in large scale core-shell nanowires*, Nano Letters, volume 11, page 4661 (2011).
54. A. Yildirim, H. Budunoglu, M. Yaman, M. O. Guler, and **M. Bayindir**, *Template free preparation of nanoporous organically modified silica thin films on flexible substrates*, Journal of Materials Chemistry, volume 21, 14830 (2011).
55. A. Yildirim, H. Acar, T. S. Erkal, **M. Bayindir**, and M. O. Guler, *Template-directed synthesis of silica nanotubes for explosive detection*, ACS Applied Materials and Interfaces, volume 3, page 4159 (2011).
56. H. Deniz, T. Khudiyev, F. Buyukserin and **M. Bayindir**, *Room temperature large-area nanoimprinting for broadband biomimetic antireflection surfaces*, Applied Physics Letters, volume 99, page 183107 (2011).
57. A. Yildirim, H. Budunoglu, B. Daglar, H. Deniz, and **M. Bayindir**, *One-pot preparation of fluorinated mesoporous silica nanoparticles for liquid marble formation and superhydrophobic surfaces*, ACS Applied Materials and Interfaces, volume 3, page 1804 (2011).
58. H. Budunoglu, A. Yildirim, M. O. Guler, and **M. Bayindir**, *Highly transparent, flexible and thermally stable superhydrophobic ORMOSIL aerogel thin films*, ACS Applied Materials and Interfaces, volume 3, page 539 (2011).
59. A. Yildirim, H. Budunoglu, H. Deniz, M. O. Guler, and **M. Bayindir**, *Template free synthesis of organically modified silica mesoporous thin films for TNT sensing*, ACS Applied Materials Interfaces, volume 2, page 2892 (2010).
60. H. E. Kondakci, M. Yaman, A. Dana, and **M. Bayindir**, *Photonic band gap infrared spectrometer*, Applied Optics, volume 49, page 3596 (2010).
61. M. Yaman, H. E. Kondakci, and **M. Bayindir**, *Large and dynamical tuning of a chalcogenide Fabry-Perot cavity mode by temperature modulation*, Optics Express, volume 18, page 3168 (2010).
62. T. S. Kasirga, Y. N. Ertas, and **M. Bayindir**, *Microfluidics for reconfigurable electromagnetic metamaterials*, Applied Physics Letters, volume 95, page 214102 (2009).
63. B. Kaplan, H. Guner, O. Senlik, K.Gurel, **M. Bayindir**, and A. Dana, *Tuning optical discs for plasmonic applications*, Plasmonics, volume 4, page 237 (2009).
64. K. Gurel, B. Kaplan, H. Guner, **M. Bayindir**, and A. Dana, *Resonant transmission of light through surface plasmon structures*, Applied Physics Letters, volume 94, page 233102 (2009).
65. A. Tulek, D. Akbulut, and **M. Bayindir**, *Ultralow threshold laser action from toroidal polymer microcavity*, Applied Physics Letters, volume 94, page 203302 (2009).
66. T. Ozdemir, S. Atilgan, I. Kutuk, L. T. Yildirim, A. Tulek, M. Bayindir, and E. U. Akkaya, *Solid state emissive BODIPY dyes with bulky substituents as spacers*, Organic Letters, volume 11, page 2105 (2009).
67. H. E. Kondakci, M. Yaman, O. Koylu, A. Dana, and **M. Bayindir**, *All-chalcogenide glass omnidirectional photonic band gap variable infrared filters*, Applied Physics Letters, volume 94, page 111110 (2009).
68. A. F. Abouraddy, M. Bayindir, G. Benoit, S. D. Hart, K. Kuriki, N. Orf, O. Shapira, F. Sorin, B. Temelkuran, Y. Fink, *Towards multimaterial multifunctional fibres that see, hear, sense and communicate*, Nature Materials, volume 6, page 336 (2007).
69. **M. Bayindir**, A. F. Abouraddy, O. Shapira, J. Viens, D. Saygin-Hinczewski, F. Sorin, J. Arnold, J. D. Joannopoulos, and Y. Fink, *Kilometer-long ordered nanophotonic devices by preform-to-fiber fabrication*, IEEE Selected Topics in Quantum Electronics, Nanophotonics special issue, volume 12, 1202 (2006) [Invited review paper].
70. A. F. Abouraddy, O. Shapira, M. Bayindir, J. Arnold, J. D. Joannopoulos, and Y. Fink, *Large-scale optical-field measurements with geometric fibre constructs*, Nature Materials, volume 5, page 532 (2006).
71. **M. Bayindir**, A. F. Abouraddy, J. D. Joannopoulos, and Y. Fink, *Thermal-sensing fiber devices by multimaterial codrawing*, Advanced Materials, volume 18, page 845 (2006).

72. **M. Bayindir**, O. Shapira, D. S. Hinczewski, J. Viens, A. F. Abouraddy, J. D. Joannopoulos, and Y. Fink, *Integrated fibres for self-monitored optical transport*, Nature Materials, volume 4, page 820 (2005).
73. E. Ozbay, K. Aydin, E. Cubukcu, and M. Bayindir, *Physics and applications of photonic nanocrystals*, International Journal of Nanotechnology, volume 1, page 379 (2004).
74. **M. Bayindir**, F. Sorin, A. F. Abouraddy, J. Viens, S. D. Hart, J. D. Joannopoulos, and Y. Fink, *Metal-insulator-semiconductor optoelectronic fibres*, Nature, volume 431, page 826 (2004).
75. K. Kuriki, O. Shapira, S. D. Hart, G. Benoit, Y. Kuriki, J. F. Viens, M. Bayindir, J. D. Joannopoulos, and Y. Fink, *Hollow multilayer photonic bandgap fibers for NIR applications*, Optics Express, volume 12, page 1510 (2004).
76. E. Ozbay, K. Aydin, E. Cubukcu, and M. Bayindir, *Transmission and reflection properties of composite double negative metamaterials in free space*, IEEE Trans. Antennas Propag., volume 51, page 2592 (2003).
77. **M. Bayindir** and E. Ozbay, *Dropping of electromagnetic waves through localized modes in three-dimensional photonic band gap structures*, Applied Physics Letters, volume 81, page 4514 (2002).
78. **M. Bayindir** and E. Ozbay, *Band-dropping via coupled photonic crystal waveguides*, Optics Express, volume 10, page 1279 (2002).
79. E. Ozbay, **M. Bayindir**, I. Bulu, and E. Cubukcu, *Investigation of localized coupled-cavity modes in two-dimensional photonic band gap structures*, IEEE Journal of Quantum Electronics, volume 38, page 837 (2002).
80. **M. Bayindir**, K. Aydin, E. Ozbay, P. Markos, and C. M. Soukoulis, *Transmission properties of composite metamaterials in free space*, Applied Physics Letters, volume 81, page 120 (2002).
81. **M. Bayindir**, C. Kural, and E. Ozbay, *Coupled optical microcavities in one-dimensional photonic band gap structures*, Journal of Optics A: Pure and Applied Optics, volume 3, page 184 (2001).
82. **M. Bayindir**, E. Cubukcu, I. Bulu, T. Tut, E. Ozbay, C. M. Soukoulis, *Photonic band gaps defect characteristics, and waveguiding in two-dimensional disordered dielectric and metallic photonic crystals*, Physics Review B, volume 64, no 195113 (2001).
83. R. Biswas, E. Ozbay, B. Temelkuran, M. Bayindir, M. M. Sigalas, and K.-M. Ho, *Exceptionally directional sources with photonic band gap materials*, Journal of Optical Society of America B, volume 18, page 1684 (2001).
84. **M. Bayindir**, E. Cubukcu, I. Bulu, and E. Ozbay, *Photonic band gaps and localization in two-dimensional metallic quasicrystals*, Europhysics Letters, volume 56, page 41 (2001).
85. **M. Bayindir**, S. Tanriseven, A. Aydinli, and E. Ozbay, *Strong enhancement of spontaneous emission in hydrogenated amorphous-silicon-nitride coupled-microcavity structures*, Applied Physics A: Material Science & Processing [Rapid Communications], volume 73, page 125 (2001).
86. **M. Bayindir**, E. Cubukcu, I. Bulu, and E. Ozbay, *Photonic band gap effect, localization, and waveguiding in two-dimensional Penrose lattice*, Physical Review B [Rapid Communications], volume 63, 161104(R) (2001).
87. **M. Bayindir**, E. Ozbay, B. Temelkuran, M. M. Sigalas, C. M. Soukoulis, R. Biswas, K. M. Ho, *Guiding, bending, and splitting of electromagnetic waves in highly confined photonic crystal waveguides*, Physical Review B [Rapid Communications], volume 63, page 081107(R) (2001).
88. **M. Bayindir** and B. Tanatar, *Bose-Einstein condensation of noninteracting charged Bose gas in the presence of external potentials*, Physica B, volume 293, page 283 (2001).
89. B. Temelkuran, M. Bayindir, E. Ozbay, J. P. Kavanaugh, M. M. Sigalas, and G. Tuttle, *Quasi-metallic silicon micromachined photonic crystals*, Applied Physics Letters, volume 78, page 264 (2001).
90. **M. Bayindir**, S. Tanriseven, and E. Ozbay, *Propagation of light through localized coupled-cavity modes in one-dimensional photonic band-gap structures*, Applied Physics A: Material Science & Processing [Rapid Communications], volume 72, page 117 (2001).
91. **M. Bayindir**, B. Temelkuran, and E. Ozbay, *Photonic-crystal-based beam splitters*, Applied Physics Letters, volume 77, page 3902 (2000).
92. **M. Bayindir** and E. Ozbay, *Heavy photons at coupled-cavity waveguide band edges in a three-dimensional photonic crystal*, Physical Review B [Rapid Communications], volume 62, page 2247 (2000).
93. **M. Bayindir**, B. Temelkuran, and E. Ozbay, *Propagation of photons via hopping: a novel waveguiding mechanism through localized coupled-cavities in three-dimensional photonic crystals*, Physical Review B [Rapid Communications], volume 61, page R11855 (2000).

94. **M. Bayindir**, B. Temelkuran, and E. Ozbay, *Tight-binding description of the coupled defect modes in three-dimensional photonic crystals*, Physical Review Letters, volume 84, page 2140 (2000).
95. B. Temelkuran, M. Bayindir, and Ekmel Ozbay, R. Biswas, M. M. Sigalas, G. Tuttle, and K. M. Ho, *Photonic crystal-based resonant antenna with a very high directivity*, Journal of Applied Physics [Communications], volume 67, page 603 (2000).
96. Z. Gedik and M. Bayindir, *Disorder and localization in lowest Landau level*, Solid State Communications, volume 112, page 157 (1999).
97. **M. Bayindir** and Z. Gedik, *Suppression of superconductivity in high-T_c cuprates due to nonmagnetic impurities: Implications for the orderparameter symmetry*, The European Physical Journal B, volume 10, page 287 (1999).
98. **M. Bayindir**, B. Tanatar, and Z. Gedik, *Bose-Einstein condensation in a one-dimensional interacting system due to power-law traps*, Physical Review A, volume 59, page 1468 (1999).
99. **M. Bayindir** and B. Tanatar, *Bose-Einstein condensation in a two-dimensional, trapped, interacting gas*, Physical Review A, volume 58, page 3134 (1998).
100. Z. Gedik and M. Bayindir, *Energy spectrum for two-dimensional potentials in very high magnetic fields*, Physical Review B, volume 56, page 12088 (1997).

Articles in Non-refereed or General Journals

101. E. Ozgur, O. Aktas, **M. Bayindir**, *Manually Assembled Macroscopic Nanowire Image Sensor*, Optics & Photonic News, Optics in 2012, December issue, page 36 (2012).
102. A. F. Abouraddy, O. Shapira, M. Bayindir, J. Arnold, J. D. Joannopoulos, and Y. Fink, *Fabrics that "See": Photosensitive Fiber Constructs*, Optics & Photonic News, Optics in 2006, December issue, page 21 (2006).
103. **M. Bayindir**, A. F. Abouraddy, F. Sorin, J. D. Joannopoulos, and Y. Fink, *Fiber photodetectors codrawn from conducting, semiconducting, and insulating materials*, Optics & Photonic News, December issue, page 24 (2004).
104. **M. Bayindir** and E. Ozbay, *Propagation photons by hopping*, Optics & Photonic News, Optics in 2000, page 31, December issue (2000).

11. RESEARCH INTERESTS

CURRENT RESEARCH INTERESTS

Biocompatible electromechanical nanosensors

- Understanding of negative piezoelectricity/electrostriction in ferroelectric polymers
- Crystallization kinetics and growth under stress and nanoconfinement
- Fabrication of kilometers-long piezoelectric/electrostrictive polymer nanostructures
- Electroactive nanosensors for flexible electronics
- Wearable sensors, energy harvesting devices, IoT sensors
- Artificial electronic skin, high-performance medical devices
- Integration of large-area nanowire array into electronic circuitry

Nanomaterials for high energy radiation detection and imaging

- Organic-inorganic hybrid nanocluster glasses
- Perovskite nanostructures for optoelectronic applications
- Transverse Anderson localization fibers for X-ray imaging
- Nanophotonic scintillators for high-energy radiation detection and imaging

Multimaterial fibers and in-fiber sensing devices

- Multifunctional fiber probes for optogenetics
- X-ray scintillating fibers for additive manufacturing
- Fiber-based large-area direct high-energy radiation detection and imaging
- Fiber-based perovskite photovoltaics
- Perovskite fibers for underwater optical communications
- Fiber-based perovskite nanocrystal single-photon sources

High-throughput single particle detection with on-chip nanosensors

- High-speed all-electrical nanoparticle sensing in fluidic chips
- Molecular sensors based on organic-inorganic hybrid perovskites: Ammonia sensing with ultrahigh sensitivity and selectivity

Bio-inspired optoelectronic digital nose

- Development of a new photonic nose concept as a highly sensitive chemical sensor
- Compact industrial/toxic gas sensors using hollow-core photonic band gap fiber integrated with quantum cascade laser array
- Compact and cheap optoelectronic IoT sensor for toxic gas monitoring for sustainable environments

PAST RESEARCH INTERESTS

Nanomaterials and nanostructures for chemical and biological sensors

- Optoelectronic nose (digital photonic nose) for toxic gas detection
- Explosive detection
- Fluorescent paper strips for highly sensitive and selective detection of nitroaromatic analytes in water samples
- Nanostructures for ultra-sensitive SERS substrates
- Turn-on fluorescent dopamine sensing

Micro- and nanophotonics

- Toroidal microcavities
- Plasmonic sensors, plasmonic resonant antennas
- Metamaterials
- Label-free detection with optical microresonators
- Binary coded identification of industrial chemical vapors
- Label-free biosensing with high selectivity in complex media using microtoroidal optical resonators

Active fibers and fiber lasers

- MCVD growth of active silica fiber preforms
- Active fibers for high-power (20kW) fiber lasers
- Fiber-based high-performance optoacoustic microphones

Photonic band gap materials, photonic crystals, photonic band gap fibers

- Coupled-cavity structures in photonic crystals
- Hollow-core photonic band gap fibers for high-power IR laser beam delivery and QCLs
- Photonic band gap fibers for infrared spectroscopy

Micro- and nano-structured fibers

- Fiber based optoelectronic and thermal devices (smart textile)
- Multimaterials fibers and fiber-based sensors (including neuroscience application)
- Hierarchically surface textured fibers (on-fiber microfluidics)

Functional nanostructured surfaces

- Multifunctional (antireflective, self-cleaning) coatings for photovoltaics
- Superhydrophobic, superhydrophilic ormosil coatings
- Smart surfaces for chemical sensing

Multimaterials fibers and in-fiber devices

- Metal-insulator-semiconductor optoelectronic fibres
- Thermal sensing fibers

13. GRANTS

1. Project Title: Fibers for woven and 3D-printed large-area conformal X-ray imaging platforms
Funding Agency: KAUST Smart-Health Initiative (KSHI)
Funding Amount: 191,000 USD
Position: Co-Principal Investigator
Period: 2023-2024
2. Project Title: Low cost and high-performance X-ray imaging scintillators
Funding Agency: KAUST
Funding Amount: 1,000,000 USD
Position: Scientific Advisor
Period: 2023-2025
3. Project Title: Piezoelectric polymer nanofibers for sensing, energy generation, and artificial skin
Funding Agency: ERC- European Research Council, ERC Proof of Concept
Funding Amount: 150,000 Euro
Position: Principal Investigator
Period: 2016-2016
4. Project Title: Fabrication and characterization of dielectric encapsulated millions of ordered kilometer long nanowires and nanotubes and their applications
Funding Agency: ERC- European Research Council
Funding Amount: 1,495,400 Euro
Position: Principal Investigator
Period: 2012-2016
5. Project Title: Digital photonic nose: Detection of toxic gases by using nanostructured photonic crystal fibers
Funding Agency: TUBITAK (COST)
Funding Amount: 178,500 USD
Position: Principal Investigator
Period: 2013-2015
6. Project Title: Preparation of mechanically stable superhydrophobic and superhydrophilic coatings for ceramic and plastic surfaces
Funding Agency: Bosch-Siemens B/S/H
Funding Amount: 60,000 USD
Position: Principal Investigator
Period: 2013-2013
7. Project Title: High-power fiber lasers (*Classified*)
Funding Agency: Tubitak
Funding Amount: 7,890,000 USD
Position: Principal Investigator
Period: 2012-2016
8. Project Title: Optomechanical and electromechanical sensors (*Classified*)
Funding Agency: Tubitak
Funding Amount: 5,830,000 USD
Position: Principal Investigator
Period: 2012-2014
9. Project Title: Ultra-high quality factor microtoroid optical resonators for biological sensing with high sensitivity and specificity
Funding Agency: The Turkish Scientific and Technical Research Council (TUBITAK)
Funding Amount: 168,000 USD

Position: Principal Investigator
Period: 2012-2014

10. Project Title: Multifunctional nanostructured coatings using organically modified silica colloids for photovoltaics and sensors
Funding Agency: The Turkish Scientific and Technical Research Council (TUBITAK)
Funding Amount: 178,500 USD
Position: Principal Investigator
Period: 2012-2014
11. Project Title: Nanotechnology roadmap for new generation banknote
Funding Agency: Central Bank of the Republic of Turkey
Funding Amount: 81,000 USD
Position: Principal Investigator
Period: 2012-2013
12. Project Title: Polymer encapsulated very long metal/semiconductor/polymer nanowire and nanotube arrays and their applications
Funding Agency: The Turkish Scientific and Technical Research Council (TUBITAK)
Funding Amount: 178,000 USD
Position: Principal Investigator
Period: 2011-2013
13. Project Title: Infrared laser fibers for medical applications
Funding Agency: The Turkish Scientific and Technical Research Council (TUBITAK)
Funding Amount: 2,000,000 USD
Position: Principal Investigator
Period: 2007-2011
14. Project Title: Wide-band infrared light generation in nanofibers
Funding Agency: The Turkish Scientific and Technical Research Council (TUBITAK)
Funding Amount: 157,000 USD
Position: Principal Investigator
Period: 2006-2009
15. Project Title: TÜBA Gebip Award
Funding Agency: Turkish Academy of Sciences (TUBA)
Funding Amount: 30,000 USD + 3,500 USD for PhD students
Position: Principal Investigator
Period: 2007-2010
16. Project Title: National Nanotechnology Research Center
Funding Agency: State Planning Organization of Turkey
Funding Amount: 27,000,000 USD
Position: Deputy Director
Period: 2006-2011