

YASEMİN DEMİRHAN

PERSONAL INFORMATION

Date of birth: 04.06.1985

Contact Information: İzmir Institute of Technology Department of Physics Gülbahçe-
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EDUCATION:

- **Ph.D** 2011- 2017

Materials Science and Engineering
İzmir Institute of Technology

- **M.S.** 2008- 2011

Department of Physics
İzmir Institute of Technology

- **B.S** 2003- 2008

Department of Physics
İzmir Institute of Technology

- **High school** 2000-2003

İzmir Atatürk Anatolian High School

EXPERIENCE:

2009- 2017 **Research Assistant – İzmir Institute of Technology**

Courses/ Laboratories: Modern Physics Laboratory 2011-2017

Optics and Waves Laboratory 2010-2017

Electronics Circuits Laboratory 2010-2017

General Physics Laboratory 1&2 2009-2017

General Physics 1 & 2 Recitation 2012-2017

2014-2016 Türkiye Bilimsel ve Teknolojik Araştırma Kurumu (TÜBİTAK)- Proje No: 114F091, “Süperiletken Metamalzeme Temelli Terahertz Band-geçirgen Filtreleri”

2012-2015 Bilim, Sanayi ve Teknoloji Bakanlığı (SANTEZ) Proje No: 1386.STZ.2012-1, “Terahertz Dalgası Duyarlı Hızlı Bolometrik Dedektör”

2016-2017 Türkiye Bilimsel ve Teknolojik Araştırma Kurumu (TÜBİTAK)- Proje No: 115F549, ”Terahertz Dalgaları Duyarlı Soğutmasız Vanadyum Oksit Bolometre Dizisi”

2018- 1512 TUBİTAK BİGG Teknogirişim Sermayesi Desteği-“Güneş Panelleri için Antireflektif ve Kendi Kendini Temizleyen Camlar”- **Girişimci**

03-06 July, 2011 İzmir National Superconductivity Symposium USS5 2011 - **Local Organizing Committe**

15□18 Haziran, 2010 NANOTR 6, 6. Türkiye Nanobilim ve Nanoteknoloji Konferansı- **Organizing Committe Assistant**

10 -13 Haziran, 2012 The 8th International Symposium on Intrinsic Josephson Effects and Plasma Oscillations in High-Tc Superconductors (PLASMA 2012)-**Local Organizing Committee**

SKILLS:

Metamaterials, Thin films and Nanotechnology, Superconducting devices, Quantum device physics (Sensors and detectors), Terahertz wavelength applications.

- Micro and NanoFabrication -uv lithography and e-beam lithography
- Thin film preparation with evaporation and magnetron sputtering systems
- Temperature-dependent resistance, magnetism, critical current and x-ray measurements in high- T_c superconductors
- Class 1000/10000 Cleanroom techniques
- FTIR, UV Spectrophotometer, Atomic Force Microscope (AFM), Hall Measurement
- CST Microwave Simulations, Microsoft Excel, Microsoft Word, Kaleidagraph, Origin Pro.

PUBLISHED ARTICLES:

(SCI, SCI-Expanded, SSCI or AHCI)

1. **Y. Demirhan**, H. Koseoglu, F. Turkoglu, Z. Uyanik, M. Ozdemir, G. Aygun, L. Ozyuzer, “Controllable deposition of Large area roll-to-roll sputtered ITO thin films for photovoltaic applications” *Renewable Energy*, 146, 1549-1559 (2020).
2. **Y. Demirhan**, H. Alaboz, M. Nebioglu, B. Mulla, M. Akkaya, H. Altan, C. Sabah, L. Ozyuzer, “Fourcross shaped metamaterial filters fabricated from high temperature superconducting YBCO and Au thin films for terahertz waves” *Superconductor Science and Technology*, 30, 7 (2017).
3. M. A. Nebioglu, T. Takan, H. Altan, **Y. Demirhan**, H. Alaboz, L. Ozyuzer, C. Sabah,” An indium tin oxide metasurface filter for terahertz applications: Design, fabrication, and characterization“ *Mod. Phys. Lett. B* 31,8 1750074 (2017).
4. H. Alaboz, **Y. Demirhan**, H. Yuce, G. Aygun, L. Ozyuzer “Comparative study of annealing and gold dopant effect on DC sputtered vanadium oxide films for bolometer applications” *Opt. Quant. Electron.* **49**, 238 (2017).
5. H. Yuce, H. Alaboz, **Y. Demirhan**, M. Ozdemir, L. Ozyuzer, G. Aygun, “Investigation of electron beam lithography effects on metal–insulator transition behavior of vanadium dioxide” *Phys. Scr.* 92,114007 (8pp) (2017).

6. **Y. Demirhan**, H. Alaboz, L. Ozyuzer, M. A. Nebioglu, T. Takan, H. Altan, C. Sabah, "Metal mesh filters based on Ti, ITO and Cu thin films for terahertz waves" *Opt. Quant. Electron.* 48, 170 (2016).
7. T. Semerci, **Y. Demirhan**, N. Miyakawa, H. B. Wang, L. Ozyuzer, "Thin film like terahertz bolometric detector on Bi2212 single crystal" *Opt. Quant. Electron.* 48, 340 (2016).
8. **Y. Demirhan**, H. Saglam, F. Turkoglu, H. Alaboz, L. Ozyuzer, N. Miyakawa, K. Kadowaki, "Area Dependence and Influence of Crystal Inhomogeneity on Superconducting Properties of Bi2212 Mesa Structures" *Vacuum* 120, 89-94 (2015).
9. F. Turkoglu, L. Ozyuzer, H. Koseoglu **Y. Demirhan**, S. Preu, S. Malzer, Y. Simsek, H.B. Wang, P. Muller, "Emission of the THz waves from large area mesas of superconducting Bi2Sr2CaCu2O8+ δ by the injection of spin polarized current" *Physica C: Superconductivity* 491, 7-10 (2013).
10. F. Turkoglu, H. Koseoglu, **Y. Demirhan**, L. Ozyuzer, S. Preu, S. Malzer, Y. Simsek, P. Müller, T. Yamamoto and K. Kadowaki, "Interferometer measurements of terahertz waves from Bi2Sr2CaCu2O8+d mesas" *Superconductor Science and Technology* 25, 125004 (2012).

BOOK CHAPTERS PUBLISHED

1. T. Semerci, **Y. Demirhan**, N. Miyakawa, H. B. Wang, L. Ozyuzer, "Fabrication of Bi2212 Single Crystal Bolometer for Detection of Terahertz Waves" Springer: THz for CBRN and Explosives Detection and Diagnosis Book Chapter, pp 75-83 (2017).
2. **Y. Demirhan**, F. Turkoglu, H. Koseoglu, H. Saglam, N. Miyakawa K. Kadowaki and L. Ozyuzer, "Inhomogeneity of Micron-Sized Triple Terahertz Emitters Fabricated from Intrinsic Josephson Junctions in Single Crystal Bi₂Sr₂CaCu₂O_{8+ δ} ", Springer: NATO Science for Peace and Security Series B: Physics and Biophysics, Terahertz and Mid Infrared Radiation: Detection of Explosives and CBRN Edited by Mauro F. Pereira and Oleksiy Shulika Book Chapter, pp 95-102 (2014).
3. H. Saglam, **Y. Demirhan**, F. Turkoglu, H. Koseoglu, N. Miyakawa K. Kadowaki and L. Ozyuzer, "Area Dependence of Josephson Critical Current Density in Superconducting Bi2Sr2CaCu2O8+ δ for Terahertz Emission" Springer: NATO Science for Peace and Security Series B: Physics and Biophysics, Terahertz and Mid

PROCEEDING ARTICLES

1. M. Akkaya, **Y. Demirhan**, H. Yuce, G. Aygun, L. Ozyuzer , C. Sabah, H. Altan “Terahertz Transmission Through Patterened Vanadium Oxide Thin Films on Dielectric Substrates” *Conference: 5th International Conference on Photonics, Optics and Laser Technology 2017* DOI: 10.5220/0006268703340339 (2017).
2. L. Ozyuzer, F. Turkoglu, **Y. Demirhan**, H. Koseoglu , S. Preu, D. Ploss, S. Malzer, Y. Simsek, H. B. Wang, P. Muller “Terahertz Wave Emission from Layered Superconductors: Interferometer Measurements” *General Assembly and Scientific Symposium, 2011 XXXth URSI* DOI: 10.1109/URSIGASS.2011.6050610 (2011).
3. Y. Demirhan, F. Türkoğlu, H. Köseoğlu, H. Saglam, M. Minematsu, H. Araki, N. Miyakawa, L. Ozyuzer “Fabrication of double mesa structures by E-beam lithography from high temperature superconducting $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ (Bi2212) for powerful terahertz emission” *General Assembly and Scientific Symposium, 2011 XXXth URSI* DOI: 10.1109/URSIGASS.2011.6050679 (2011).
4. F. Turkoglu, Y. Simsek, H. Koseoglu, **Y. Demirhan**, Z. Meric, L. Ozyuzer, "Spin polarized tunneling in large area mesas of superconducting $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ for the generation of the THz waves" *Terahertz and Mid Infrared Radiation: Basic Research and Practical Applications, 2009. TERA-MIR 2009. International Workshop, 23-24* (2009).
5. H. Koseoglu, F. Turkoglu, **Y. Demirhan**, Z. Meric, L. Ozyuzer. "Reactive ion beam etching of superconducting Bi2212 by Ta/PR and PR /Ta/PR masks for the generation of THz waves" *Terahertz and Mid Infrared Radiation: Basic Research and Practical Applications, 2009. TERA-MIR 2009. International Workshop, 31-32* DOI: 10.1109/TERAMIR.2009.5379642 (2009).

ORAL PRESENTATIONS in INTERNATIONAL CONGRESSES AND SYMPOSIA

1. **Y. Demirhan**, H. Koseoglu, F. Turkoglu, S. Zeybek, Z. Uyanik, M. Ozdemir, G. Aygun, L. Ozyuzer “Controllable Deposition of Large Area roll-to-roll Sputtered ITO Thin Films for Photovoltaic Applications” PVCON 2018, Ankara

2. **Y. Demirhan**, H. Yüce, M. Akkaya, H. Altan, L. Özyüzer, G. Aygün “Modification of Tunable THz Filters Fabricated from Vanadium Dioxide Thin Films” 2017 ICG Annual Meeting& 32nd Şişecam Glass Symposium in Istanbul, Turkey on October 22-25th 2017
3. **Y. Demirhan**, H. Alaboz, M. A. Nebioğlu, B. Mulla, H. Altan, C. Sabah, L. Ozyuzer “Tunable Metamaterial Filters Fabricated from High Temperature Superconductors” FRONTIERS IN THEORETICAL AND APPLIED PHYSICS – UAE 2017 22-25 February(FTAPS 2017) 2017 DUBAI.
4. **Y. Demirhan**, H. Alaboz, M. A. Nebioglu, T. Takan, H. Altan, C. Sabah, L. Özyüzer (2016). “Tunable Band Pass Metamaterial Filters Based on YBCO Superconductors in Terahertz Range”. Science and Applications of Thin Films, Conference & Exhibition (SATF 2016) 19-23 Eylül-Türkiye.
5. **Y. Demirhan**, H. Alaboz, M. A. Nebioglu, T. Takan, H. Altan, C. Sabah, L. Özyüzer (2016). “Design and Analysis of Narrowband Metamaterial Filters in Terahertz Range”. 4th Annual Conference of COST Action MP1204& SMMO2016 Conference Lisboa (Portugal)
6. **Y. Demirhan**, T. Semerci, H. Alaboz, M. Kurt, N. Miyakawa, K. Kadowaki, L. Ozyuzer “Log Periodic Antenna Structures Fabricated from Bi2212 Single Crystals” SATF2014-Science & Applications of Thin Films, Conference & Exhibition (15-19 Eylül 2014, Çeşme, İzmir)

ORAL PRESENTATIONS in NATIONAL CONGRESSES AND SYMPOSIA

1. **Y. Demirhan**, H. Alaboz, T. Semerci, L. Özyüzer, M. A. Nebioglu, T. Takan, H. Altan, C. Sabah (2016). Modelling and Fabrication of Tunable Metamaterial filters for optical applications. 31.Sisecam Cam Sempozyumu –İstanbul 2016.
2. **Y.Demirhan**, F. Türkoğlu, H. Köseoğlu, Z. Meriç, H. Sağlam, M. Ali Olgar, T. Yamamoto, K. Kadowaki, L.Özyüzer “Doping of Superconductors for the THz Emission of Intrinsic Josephson Junctions” NANOTR-2011 Sabancı Üniversitesi İstanbul NANOTR-2011 Sabancı Üniversitesi (İstanbul 27 Haziran-1 Temmuz)
3. **Y.Demirhan**, F. Türkoğlu, H. Köseoğlu, Z. Meriç, H.Saglam, M.A.Olgar, M.Minematsu, H.Araki, T. Yamamoto, K. Kadowaki, L.Özyüzer “Fabrication Of Double Mesa Structures By e-beam Lithography From Superconducting

References

Prof. Dr. Lütfi ÖZYÜZER

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