

Dr. Fatih YAMAN

Research Interests

RF/Microwave Structure Designs for Particle Accelerators.
Beam instabilities, Wake fields and Impedances in Accelerators.
Numerical Solutions of Direct and Inverse Scattering Problems.
Short-Range Doppler Radar Applications.

Education

- 09/2004–12/2009 **PhD in Electronics and Communications Engineering**, *Telecommunications Engineering PhD Program*, Istanbul Technical University.
○ **10/2006–02/2008: PhD thesis studies**, Numerical and Applied Mathematics Institute, University of Göttingen, Germany (DAAD Scholar).
- 09/2001–07/2004 **MSc in Electrical and Electronics Engineering**, Istanbul University.
○ **08/2003–04/2004: MSc thesis studies**, Center for Satellite Communications and Remote Sensing, Istanbul Technical University
- 09/1997–08/2001 **BSc in Electrical and Electronics Engineering**, Istanbul University.

Professional Appointments

- 05/2014 – present **Assistant Professor**, *Izmir Institute of Technology*, Department of Electrical and Electronics Engineering, Turkey.
- 12/2009 – 05/2014 **Research Fellow**, *Institut für Theorie Elektromagnetischer Felder*, Technische Universität Darmstadt, Germany.
- 12/2005–12/2009 **Research Assistant**, *Electrical and Electronics Faculty, Electronics and Communications Engineering Department*, Istanbul Technical University, Turkey.
- 04/2004–12/2005 **Application Engineer**, *Research and Development Department*, BEKO Electronics (production factory), Istanbul, Turkey.
- 08/2003–04/2004 **Researcher**, *Center for Satellite Communications and Remote Sensing*, Istanbul Technical University, Turkey.
- 12/2001–08/2003 **Research Assistant**, *Engineering Faculty, Electrical and Electronics Engineering Department*, Istanbul University, Turkey.

Institutional Roles

- 04/2018-present ICTP-Eurasian Centre for Advanced Research Board Member
05/2014-present Erasmus Coordinator of the Electrical and Electronics Engineering Department

Projects

- 11/2018 - present **Researcher**, “*CompactLight(XLS)*”, Horizon2020, European Commission, 777431.
05/2017 - present **Researcher**, “*RF Circulator and RF Transmission Line Design, Simulation and Implementation*”, TÜBİTAK(The Scientific and Technological Research Council of Turkey) - 1005.

- 02/2018 - present **Leader**, “*Metamaterial Antenna Design for 5.8GHz Doppler Radar*”, BAP (Scientific Research Project of Izmir Institute of Technology), 2017İYTE44.
- 02/2016 - 06/2016 **Advisor**, “*Target and Range Identification with FM-CW Doppler Radar*”, TÜBİTAK(The Scientific and Technological Research Council of Turkey) 2209B).
- 06/2015 - 06/2016 **Leader**, “*Impedance Calculations in Particle Accelerators*”, BAP (Scientific Research Project of Izmir Institute of Technology), 2015İYTE32.
- 08/2014 - 12/2016 **Researcher**, “*1-5 MeV RF Proton Accelerator Implementation*”, TAEK (Turkish Atomic Energy Authority) A4.H4.P1.
- 11/2012 – 05/2014 **Leader**, “*Identification of Air Inhomogeneities Inside of Tendon Ducts in Concrete via Boundary Integral Equations in Acoustics*”, DFG (German Research Foundation) YA 304/ 2-1.
- 07/2011 – 11/2012 **Researcher**, “*Quantum Chaos and Wave-Dynamical Chaos*”, SFB-634, DFG.
- 12/2009 – 07/2011 **Researcher**, “*Untersuchung von Elektronenwolkeneffekten in SIS-18/100*”, BMBF-06DA9022I.

Scientific Event Organizations

- 09/2019 International Advisory Board Member, Workshop on “Mitigation of Coherent Beam Instabilities in Particle Accelerators”, Zermatt, Switzerland
- 07/2018 Scientific Board Member, “12th National Particle Accelerators and Detectors Summer School”, Ankara, Turkey
- 05/2014 Member of International Organizing Committee, “ 7th International Conference Inverse Problems: Modelling and Simulation”, Antalya, Turkey

Editorial

- 2014-2015 Lead Guest Editor of the Special Issue: *Recent Theory and Applications on Inverse Problems*”, Mathematical Problems in Engineering, (with Valery G. Yakhno, Caner Özdemir, Tzu-Yang Yu, and Roland Potthast)
- Editorial Section of the Issue: Fatih Yaman, Valery G. Yakhno, Caner Özdemir, Tzu-Yang Yu, Roland Potthast, 'Recent Theory and Applications on Inverse Problems 2014', Mathematical Problems in Engineering. Vol.2015 (2015), Article ID 403729.
- 2012-2013 Lead Guest Editor of the Special Issue: *Recent Theory and Applications on Inverse Problems*”, Mathematical Problems in Engineering, (with Valery G. Yakhno and Roland Potthast)
- Editorial Section of the Issue: Fatih Yaman, Valery G. Yakhno, and Roland Potthast, 'Recent Theory and Applications on Inverse Problems', Vol. 2013 (2013), Article ID 303154.

Refereed International Journal Papers(SCI, SCI-E)

- 2018 Yilmaz O. and Yaman F., Meta-Material Antenna Designs for a 5.8 GHz Doppler Radar, *under review*
- 2018 Karatay A., Orcan D., Ozkal C. and Yaman F., Implementation and Experimental Verifications of Microstrip Antennas for Angular Scanning of a Doppler Radar, *under review*
- 2018 Karatay A. and Yaman F., Electromagnetic Simulations of Mechanical Imperfections for Elliptical Cavities, *under review*
- 2018 Yaman F., Numerical Investigations of Resistive Wall Wake Potentials and Results for Operational Machines, *under review*

- 2014 Yaman F. and Weiland T., Inhomogeneity Reconstructions in Tendon Ducts via Boundary Integral Equations, *NDT and E International*, 68, 66–72, 2014.
- 2013 Yaman F., Yakhno V. G. and Potthast R., A Survey on Inverse Problems for Applied Sciences. *Mathematical Problems in Eng.*, Article ID 976837, 2013.
- 2012 Boine-Frankenheim O., Gjonaj E., Petrov F., Yaman F., Weiland T. and Rumolo, G., Energy loss and longitudinal wakefield of relativistic short proton bunches in electron clouds. *Phys. Rev. ST Accel. Beams*, 15, 5, pp.054402 (1-8).
- 2010 Yaman F., A combination of shape and conductivity function reconstruction methods for an inverse boundary value problem. *Wave Motion*, 47, 4, 253–263.
- 2009 Yaman F., Location and shape reconstructions of sound-soft obstacles buried in penetrable cylinders. *Inverse Problems*, 25, 6, 1–17.
- 2009 Kress R., Yaman F., Yapar A. and Akduman I., Inverse scattering for an impedance cylinder buried in a dielectric cylinder. *Inv. Prob. in Sci. and Eng.*
- 2009 Kress R., Tezel N. and Yaman F., A second order Newton method for sound soft inverse obstacle scattering. *J. Inverse and Ill-Posed Problems*, 17, 173–185.
- 2009 Yaman F. and Simsek S., Shape reconstruction of an inhomogeneous impedance cylinder via potential and Neural Network approach. *Mw. and Opt. Tech. Let.*
- 2008 Yaman F., Numerical solution of an inverse conductive boundary value problem. *Radio Science*, 43, RS6004.
- 2007 Yaman F. and Simsek S., Neural Network approach to determine non smooth one - dimensional profiles in inverse scattering theory. *Mw. and Opt. Tech. Let.*

Refereed international proceeding papers

- 2018 Cetinkaya H., Caglar A., Cicek C., Ozbey A., Sunar E., Turemen G., Yildiz H., Yuncu A., Ozcan E., Unel G., Yaman F., KAHVE Laboratory RF Circulator and Transmission Line Project, *AIP Conference Proceedings 1935*, 070002, 2018.
- 2015 Turemen G., Yasatekin B., Ogur S., Yildiz V., Mete O., Ozbey A., Yildiz H., Oz S., Yaman F., Akgun Y., Alacakir A., Bolukdemir S., Bozbey A., Sahin A., Unel G., Erhan S., Current Status of the Sanaem RFQ Accelerator Beamline, *Proceedings of International Particle Accelerator Conference(IPAC) 2015*, ISBN 978-3-95450-168-7, pages 3952–3955.
- 2013 Yaman F. and Weiland T., Location and Shape Reconstructions of Objects Buried in Inhomogeneously Penetrable Cylinders. *Proceedings of ICEAA-IEEE APWC - EMS'13, 2013 IEEE*, pages 1505–1508
- 2012 Yaman F., Ackermann W. and Weiland T., Comparison of Eigenvalue Solvers for Large Sparse Matrix Pencils. *Proceedings of International Computational Accelerator Physics(ICAP) 2012*, (ISBN 978-3-95450-116-8), pages 287–289.
- 2011 Boine-Frankenheim O., Yaman F., Gjonaj E., Weiland T. and Rumolo G., Energy Loss and Longitudinal Wake Field of Relativistic Short Ion Bunches in Electron Clouds. *Proceedings of International Particle Accelerator Conference(IPAC) 2011, (IPAC'11/EPSC-AG)*, pages 2229–2231.
- 2008 Yaman F., Inverse scattering of an arbitrarily shaped buried scatterer with conductive boundary condition. Abstract for *8th. World Congress on Computational Mechanics (WCCM8), 5th European Congress on Computational Methods in Applied Sci. and Eng. (ECCOMAS 2008)* (Eds. B. A. Schrefler and U. Perego), Venice, Italy.
- 2008 Yaman F., Shape reconstructions of sound-soft obstacles buried in arbitrarily shaped penetrable cylinders. *Proc. of the Institute of Acoustics* Vol. 30. Pt.2, pages 252–259.

- 2006 Yaman F. and Yapar A., One-dimensional profile inversion of a planar layer bounded by an inhomogeneous impedance boundary. *Proceedings of DIPED 2006 XIth International Seminar / Workshop Direct and Inverse Problems of Electromagnetic and Acoustic Wave Theory*, pages 65–70.

National proceeding papers and scientific reports

- 2011 Yaman F., Gjonaj E., Boine-Frankenheim O. and Weiland T., Investigation of Electron Cloud Effects in the GSI, *GSI SCIENTIFIC REPORT 2011*, PHN-ACC-RD-20.
- 2011 Yaman F., Gjonaj E. and Weiland T., Simulation of electron cloud effects to heavy ion beams. Abstract for *Verhandlungen der Deutschen Physikalischen Gesellschaft, DPG-Frühjahrstatung 2011 (ISSN 0420-0195), Karlsruhe, Germany*.
- 2006 Yaman F. and Yapar A., Determination of one-dimensional electromagnetic profile of an inhomogeneous planar layer located over a perfectly conducting plane, (*in Turkish*), *URSI-Türkiye 2006 Genel Kurulu ve Bilimsel Kongresi*, pages 149–151, Ankara, Turkey

International workshops and conferences

- 2018 4th International Conference on Theoretical and Experimental Studies for Nuclear Applications and Technology, Antalya, Turkey, (*talk by collaborator*)
- 2017 Turkish Physical Society 33rd International Physical Congress, Bodrum, Turkey (*talk by collaborator*)
- 2014 Inverse Problems: Modeling and Simulation, Fethiye, Turkey, (*talk*)
- 2013 International Conference on Electromagnetics in Advanced Applications (ICEAA '13), Turin, Italy, (*talk*)
- 2012 International Computational Accelerator Physics (ICAP), Rostock-Warnemünde, Germany, (*talk*)
- 2011 International Particle Accelerator Conference (IPAC) 2011, San Sebastian, Spain, (*poster*)
- 2011 CERN - GSI Electron Cloud Workshop 2011, Geneve, Switzerland, (*talk*)
- 2010 Multi-Scale Methods in Computational Engineering, Darmstadt, Germany
- 2010 Inverse Problems: Modeling and Simulation, Antalya, Turkey, (*talk*)
- 2008 European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS) 2008, Venice, Italy, (*talk*)
- 2008 Widening Horizons in Acoustics Research, Reading, UK, (*talk*)
- 2007 Integral Equations and Shape Reconstruction, Goettingen, Germany

National workshops and conferences

- 2016 11th National Nuclear Sciences and Technologies Congress, Kusadasi, Turkey (*talk by collaborator*)
- 2016 Young Physicists Congress, Izmir, Turkey, (*2 talks by collaborators*)
- 2016 6th Internationally Participated Congress on Particle Accelerators and Applications, Bodrum, Turkey, (*poster*)
- 2016 Accelerators and Detectors Workshop, Istanbul, Turkey, (*invited talk*)
- 2014 Young Physicists Congress, Izmir, Turkey, (*invited talk*)
- 2013 Advances in Electromagnetic Research KWT, Kleinwalsertal, Austria, (*talk*)

- 2013 High Performance Computing Hessen , Darmstadt, Germany
2012 Advances in Electromagnetic Research KWT, Kleinwalsertal, Austria, (poster)
2012 SFB-634 Workshop 2012, Bonn, Germany (talk)
2011 Advances in Electromagnetic Research KWT, Kleinwalsertal, Austria, (poster)
2011 DPG-Frühjahrstatung 2011, Karlsruhe, Germany, (*talk*)
2010 Advances in Electromagnetic Research KWT, Waren(Müritz), Germany, (talk)

Paper reviews for the journals

Journal of Computational and Applied Mathematics (Elsevier)
Applied Mathematics and Computation (Elsevier)
Mathematics and Computers in Simulation (Elsevier)
International Journal of Numerical Modelling: Electronic Networks, Devices and Fields (Wiley)
International Journal of Computer Mathematics (Taylor & Francis)
PIER, Progress in Electromagnetic Research
Turkish Journal of Electrical Engineering & Computer Sciences (Tubitak)
Abstract and Applied Analysis (Hindawi)

Master Thesis Supervisions

- 10/2015– 07/2018 Bursali H., “Simulations and Measurements of X-band Accelerating Structures for CLIC Project”, co-supervisor Nuria Catalan Lasheras(CERN)
10/2017– ongoing Yilmaz O., “Metamaterial Antenna Design for 5.8GHz Doppler Radar”
01/2018– ongoing Caglar A., “Design and Measurements of a Microwave Cavity and Coupler for a Klystron Test Stand ”
05/2018– ongoing Karatay A., “Mechanical Defect Investigations for Accelerating Cavities ”
05/2018– ongoing Ozkal C., “Dielectric Measurements via Microwave Cavities ”

Teaching Experience

- Numerical Methods for Electromagnetics (graduate)
- Microwave Devices and Applications (graduate)
- Microwave Engineering(undergraduate)
- Introduction to Microwave and Antenna Measurements (undergraduate)
- 4th year students semester projects (undergraduate)
- RF Structures (12th National Particle Accelerators and Detectors Summer School, Ankara, Turkey, 2018)