



Department of Mathematics,
Faculty of Science 35430 Urla/İzmir, Türkiye
+90 505 821 8841
gsahan@iyte.edu.tr
<https://web.iyte.edu.tr/gsahan/>

Gökhan Şahan

0000-0002-2371-6648

Education

- 2006 - 2014 **PhD in Mathematical Control Theory**, *Gebze Institute of Technology*, Turkey
Thesis: **Stability of bimodal systems.**
- 1999 - 2002 **MSc in Algebra and Number Theory**, *Ege University*, Turkey
- 1998 - 2002 **BSc in Mathematics**, *Ege University*, Turkey

Professional Experience

- 2010 - ongoing **Lecturer**, *İzmir Institute of Technology*, Department of Mathematics, Türkiye
- 02 2024 **Associate professor**, by *UAK-Interuniversity Board*, Turkey
- 2014 - 2015 **Postdoctoral researcher**, *Coordinated Science Laboratory, University of Illinois*, with Prof. Daniel Liberzon and Prof. Tamer Başar, Urbana Champaign IL USA
- 2006 - 2007 **Research Assistant**, *Gebze Institute of Technology*, Gebze, Turkey
- 2002 - 2006 **Math Teacher**, *Turkiye Ministry of Education*, Izmir, Turkey
- 1999 - 2002 **Research Assistant**, *Ege University*, Izmir, Turkey

Skills

- Softwares **Octave, LaTeX**, (open source)
MATLAB, (commercial)

Research Interests

- Nonlinear Systems (Stability Analysis – Lyapunov Methods)**
Switched Systems (Well-Posedness and Stability Analysis)
The Mathematics of Internet Congestion Control

Project grants

- 2020-2022 **Tubitak 3501 Project**. 119F281 "Stability Analysis using Relaxed Conditions of Lyapunov Direct Method",
- 2017-2018 **BAP Project-IYTE**. 2017G-IYTE83, The Designing of Travelling Salesman Problem Based Mobile Application.
- 2016-2017 **BAP Project-IYTE**. 2016IYTE69, Well Posedness for Planar Conewise Linear Systems.

Publications

- #10**, Sahan G and Ozdemir D. *Stability Analysis by an Indefinite Bounding for the Derivative of Lyapunov Function: A Survey, in progress.*
- #9**, Sahan G. and Trenn S. *Comments on "Relaxed Conditions for the Input-to-State Stability of Switched Nonlinear Time-Varying Systems", revision-2nd version.*
- #8**, Sahan G. and Ozdemir D. *Uniform Asymptotic and Input to State Stability by Indefinite Lyapunov Functions, European Journal of Control Volume 76, March 2024, 100945.*
- #7**, Sahan G. *"Exponential Stability and Boundedness of Nonlinear Perturbed Systems by Indefinite Lyapunov Functions", Journal of the Franklin Institute 360 (2023) 10275–10296.*
- #6**, Sahan G., *"Relaxations on Conditions of Lyapunov Functions". Suleyman Demirel University Journal of Natural and Applied Sciences Volume 25, Issue 2, 238-244, August 2021*
- #5**, Sahan G. *"Stability Analysis by a Nonlinear Upper Bound on the Derivative of Lyapunov Function". European Journal of Control. Volume 56, November 2020, Pages 118-123.*
- #4**, Sahan G., Eldem V., *"Well Posedness for Planar Conewise Linear Systems", Transactions of the Institute of Measurement and Control, May 2018, Vol 41 (8), 2093-2099.*
- #3**, Eldem V., Sahan G., *"The Effect of Coupling Conditions on the Stability of Bimodal Systems in R^3 ", Systems and Control Letters, 2016, vol.96, pp.141-150.*
- #2**, Sahan G., Eldem V., *"Well-posedness conditions for Bimodal Piecewise Affine Systems in R^n ", Systems and Control Letters, 2015, vol.83, pp.9-18.*
- #1**, Eldem V., Sahan G., *"Structure and stability of Bimodal Systems in R^3 : Part I" , Applied and Computational Mathematics, 2014, vol.13 (2), pp.206-229.*

Master Thesis supervision

- #1 Ayşenur Geyik-2024 On Cofinitely OPlus Essential Supplemented Modules, Co-supervised with Prof.Dr. Ayten Pekin, Istanbul University**
- #2 Gülfem Kahraman - ongoing, Department of Mathematics, Izmir Inst. of Tech.**

Courses taught

- Calculus 1-2 (undergraduate)** , (Izmir Inst. of Tech.)
- Basic Linear Algebra (undergraduate)**, (Izmir Inst. of Tech.)
- Differential Equations (undergraduate)**, (Izmir Inst. of Tech.)
- An Introduction to Mathematical Control Theory (undergraduate)**, (Dep. of Mathematics-Izmir Inst. of Tech.)
- Ordinary Differential Equations (graduate)**, (Dep. of Mathematics - Izmir Inst. of Tech.)
- Linear Systems Theory (graduate)**, (Dep. of Electrical and Electronical Engineering - Izmir Inst. of Tech.)
- Nonlinear Systems (graduate)**, (Department of Electrical and Electronical Engineering - Izmir Inst. of Tech.)

Languages

- English: C1
Turkish: Native