Giresun University, Faculty of Arts and Sciences

Department of Mathematics

Online Colloquiums – 2

Virtual Invited Speaker

Asst. Prof. Nick Wintz

Department of Math & Stats

Radford University, VA USA

nwintz@radford.edu

https://nickwintz.com

Moderator

Prof. Dr. Özkan Öztürk

Department of Mathematics

Giresun University, Türkiye

ozkan.ozturk@giresun.edu.tr

www.drozkanozturk.com

: *The Conformable Kalman Filter*

: *October 20, 2025*

: *16.00 (Istanbul Time), 09.00 (Eastern Time)*

: https://teams.live.com/meet/9328827885229?p=1VBGQbgf2RuFAziRxk

: In this project, we formulate the Kalman-Bucy filter for linear, continuous conformable control systems corrupted by white noise. Here, we use the system first introduced by Khalil, et al. We obtain a state transition matrix via a Peano-Baker expansion that allows us to calculate our error propagation through a Riccati equation. In addition, we show the duality between the conformable Kalman filter and its associated conformable linear quadratic regulator (CLQR) problem is preserved. Finally, we provide numerical simulations for relevant applications.

This project was supported by the National Science Foundation grant DMS-2150226.