

August 19th, 2025 (Tuesday)

Place: Microsoft Teams

11:00 AM (Coimbra time)

Speaker: Jean-Simon Pacaud Lemay

Macquarie University, Australia

Drazin Inverses in (Dagger) Categories

Abstract

Drazin inverses are a special kind of generalized inverse that have been extensively studied and have many applications in ring theory, semigroup theory, and matrix theory. Drazin inverses can also be defined for endomorphisms in any category. A natural question is whether one can extend the notion of Drazin inverse to arbitrary maps—not just endomorphisms. It turns out that this is natural to do in dagger categories. This talk explores Drazin inverses from a categorical perspective, their relation to idempotent splitting, eventual image duality, and introduces dagger Drazin inverses. These are connected to Moore–Penrose inverses.

References

Based on joint work with Robin Cockett and Priyaa Varshinee Srinivasan:

arXiv:2402.18226

arXiv:2502.05306