▸ CÓRDOBA-CAYCEDO, CARLOS, *Elimination of imaginaries in algebraically closed valued fields with analytic and differential structure.*
Department of Mathematics & Statistics, McMaster University, 1280 Main Street West, Hamilton, Ontario, Canada.
E-mail: cordobac@mcmaster.ca.

A natural construction in different areas in mathematics is the one of generating quotients of a structure via equivalence relations. Model theorists used an analogous idea to eliminate quantifiers to obtain some control over quotients of structures by definable equivalence classes. Eliminating these imaginaries in the structure guarantees that quotients could be captured by definable sets in the structure.

In the case of algebraically closed valued fields (ACVF), it is known that they do not eliminate imaginaries in the usual language. However, Haskell, Hrushovski, and Macpherson in 2006 constructed a suitable collection of geometric sorts that needs to be included in the language to eliminate imaginaries. Later, the same authors showed that the analytic extension of ACVF by restricted analytic functions ($\mathrm{ACVF}_{\mathcal{A}}$) does not eliminate imaginaries in the same collection of sorts.

For my Ph.D. thesis, we are working alongside Dr. Haskell to construct a suitable collection of sorts where this analytic extension eliminates imaginaries. However, due to the complexity of the imaginaries that arise in the structure, we started by studying other extensions of $\mathrm{ACVF}_{\mathcal{A}}$ to properly understand them. One of the extensions that we study is the one by a generic derivation which follows closely the work of Cubides and Point in 2022 on topological fields.

During this talk, I intend to give a summary of our ongoing work on this matter including recent results about a transfer of elimination of imaginaries in the differential extension of $\mathrm{ACVF}_{\mathcal{A}}$, and a general overview of the status of our main project regarding the imaginaries in $\mathrm{ACVF}_{\mathcal{A}}$.