



UNIVERSITY OF MIAMI  
COLLEGE of  
ARTS & SCIENCES

## Miami Physics Conference 2023

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**Date:** Dec 13-19, 2023  
**Location:** LagoMar Resort  
**Affiliation:** University of Florida

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# Search for Eccentric Black Hole Coalescences during the Third Observing Run of LIGO and Virgo

## Abstract

Gravitational-wave signals give us several hints that can help determine what kind of environment the binary formed and merged in. One of the biggest indicators that a binary interacted with its environment in the late stages of its evolution is its orbital eccentricity. In my presentation, I will talk about why the detection of gravitational wave signals from eccentric binary black holes has proved to be challenging and the progress that has been made by LIGO–Virgo–KAGRA (LVK) to mitigate these challenges. I will also discuss the LVK’s search sensitivity in the third observing run and its dependence on source properties of the binary black hole system, and how this can be a useful tool to make astrophysical interpretations of our detections.