

## Searching for interstellar meteoroids in Canadian Meteor Orbit Radar data

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Detecting interstellar meteoroids has been a major theme in meteor science for more than a century. Detection and characterization of the flux and origin for individual interstellar meteoroids is a potentially powerful tool for constraining the large dust population in the ISM as well as models of planet formation (Murray et al., 2004). The recent detection of 1I/ 'Oumuamua demonstrates that small interstellar bodies are present in the inner solar system, but their origin and flux remains unknown. To convincingly detect hyperbolic meteoroids, individually measured meteors require well understood orbital uncertainties.

Here we examine meteoroid orbits gathered by the Canadian Meteor Orbit Radar (CMOR) from 2011-2019, consisting of just over 11 M orbits in a search for potential interstellar meteoroids. We apply a Monte Carlo simulation to potential IS echoes to probabilistically evaluate candidate hyperbolic events. We also address the major remaining systematic uncertainty in CMOR orbit determination, namely atmospheric deceleration, by using CMOR-detected echoes from meteor showers and comparing these to recent literature values at similar sizes. This has created an improved deceleration correction for CMOR, which bounds the expected systematic shift in measured echo velocities. We find a handful of potential IS meteoroids from among the best measured CMOR echoes and discuss the probability that these specific events are indeed interstellar in origin.