

Poster

Splinter Exoplanets

THE ROME/REA MICROLENSING KEY PROJECT – A WINDOW TO  
PLANETS BEYOND THE SNOWLINE

M. Hundertmark<sup>1</sup> and the RoboNet team

<sup>1</sup>*Astronomisches Rechen-Institut, Zentrum für Astronomie der Universität  
Heidelberg*

Gravitational microlensing provides us with a threefold complementary view on exoplanets: i) microlensing planets are typically found in orbits of  $\sim 1$ -10 AU (i.e. beyond the snowline) around their host stars, ii) the majority of the stellar hosts are K or M dwarfs which are iii) located at distances of several kiloparsecs. Stellar microlensing events are very rare occurrences (about one in a million bulge stars is microlensed at any given time), but modern surveys that regularly monitor a few 100 million of stars, discover about two thousand stellar microlensing events per year. A handful of these exhibit the tell-tale signature of a planet beyond the snowline.

The ROME/REA Key Project is the largest science project running at the Las Cumbres Observatory (LCO) with the express aim of deriving the mass function of cold exoplanets via microlensing. Very little is yet known about those planets, yet they play a central role in models of planet formation and evolution.

We employ a novel approach that uses LCO's 1-m robotic telescopes at different longitudes on three continents to monitor a few times per day certain areas of the sky with a known high microlensing event rate. Additional LCO telescopes are relied upon to provide hourly observations of the most promising targets. Observations are scheduled automatically and carried out in three bands. The photometry for about three million stars observed by this survey will be released publicly at the end of the project and will be used as a training set for the upcoming WFIRST space mission.

We present a summary of the first observing season and ongoing software development. For further information, please visit <https://robonet.lco.global/>