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Title: Hot on the Trail of Warm Planets Orbiting Cool Stars
Type: Invited Talk
Session: Earth Analogues and Super-Earths
Abstract: Just three years ago the prospect of finding temperate, rocky worlds around other stars was still the subject of science fiction: none had been found and reasonable estimates put us years or decades away from such a momentous discovery. All of that has changed very recently on the heels of the extraordinarily successful NASA Kepler mission. By searching for the tiny diminutions of starlight indicative of an eclipsing planet, Kepler has produced thousands of new planet candidates orbiting distant stars. Careful statistical analyses have shown that the majority of these candidates are bona fide planets, and the number of planets increases sharply toward Earth-sized bodies. Even more remarkably, many of these planets are orbiting right “next door,” around tiny red dwarf stars. I will describe our multi-telescope campaign to validate and characterize these tiny planetary systems, and present some early, exciting results that point the way to the first detection of the first Earth-sized planet in the habitable zone of a star.