Alternative Earths

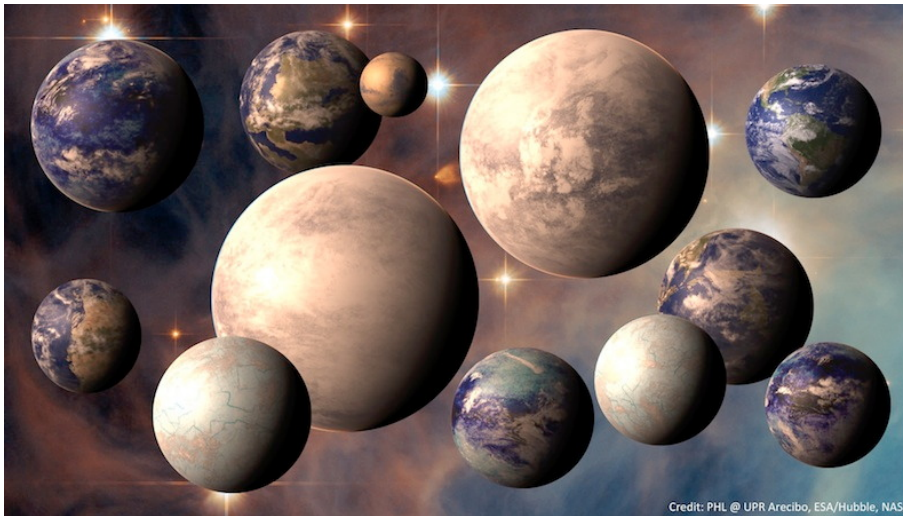
A MEMBER OF THE NASA ASTROBIOLOGY INSTITUTE

Yale University

Georgia Tech

Exploring four billion years of persistent habitability on a dynamic early Earth…

…to guide NASA's mission-specific search life on distant worlds.



EXPANDING UCR'S ASTROBIOLOGY RESEARCH MISSION

ALTERNATIVE EARTHS ASTROBIOLOGY CENTER

PROPOSED SCOPE OF FACULTY EXPERTISE AT UCR

EARLY EARTH RESEARCH

OBJECTIVES

CURRENT | Define a comprehensive catalog of diverse habitable states that existed on Earth over its 4.5-billion-year history to use as a roadmap for NASA's mission-specific searches for habitable worlds.

FUTURE | Detect planets outside our solar system, assess their habitability as informed by modeled Earth states, and ultimately find evidence for life.

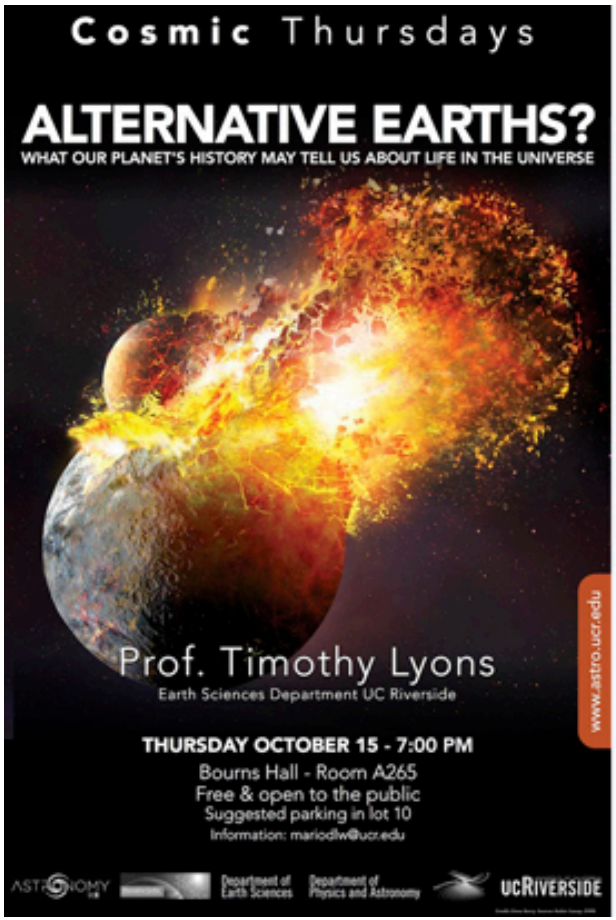
FACULTY EXPERTISE

UCR is a known as a world leader:	***UCR relies on partner institutions:***	***UCR relies on other active teams of the NASA Astrobiology Institute***
Biogeochemistry Track oxygenation and other chemical signatures of habitability and life.	**Planetary Geology** Explore planetary-scale controls on habitability and environmental change.	**Exoplanet Detection** Detect planets outside our solar system with access to current and upcoming NASA missions and ground-based instruments
Paleontology & Organic Chemistry Track evolving life.	**Atmospheric Modeling** Model the atmospheres of Earth's habitable states.	**Exoplanet Characterization** Characterize habitability of exoplanets using their spectroscopic signatures.
UCR Alternative Earths Team of the NASA Astrobiology Institute		**Other Teams of the NASA Astrobiology Institute**

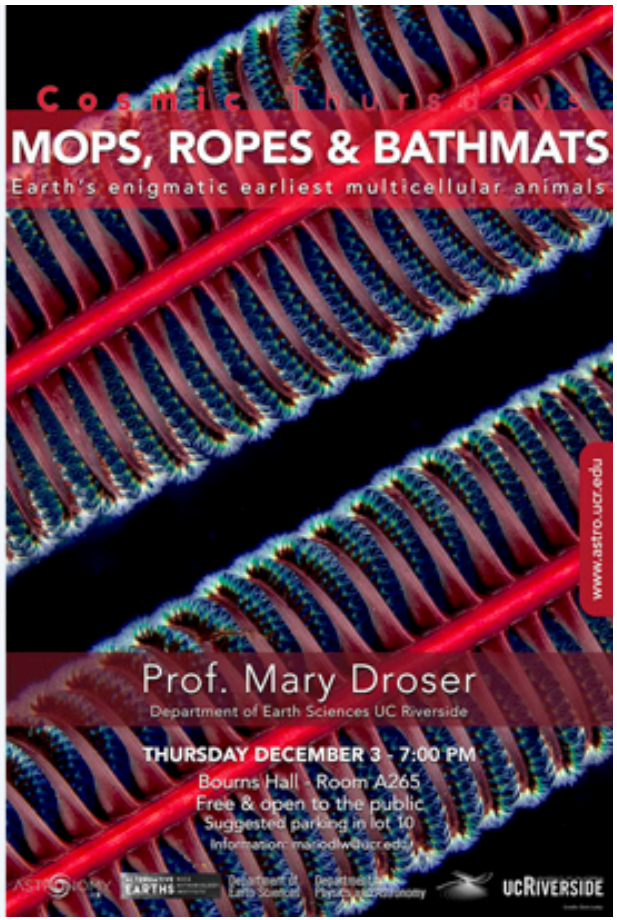
EXOPLANET RESEARCH

UNIVERSITY OF CALIFORNIA, RIVERSIDE
UC RIVERSIDE
UNIVERSITY OF CALIFORNIA

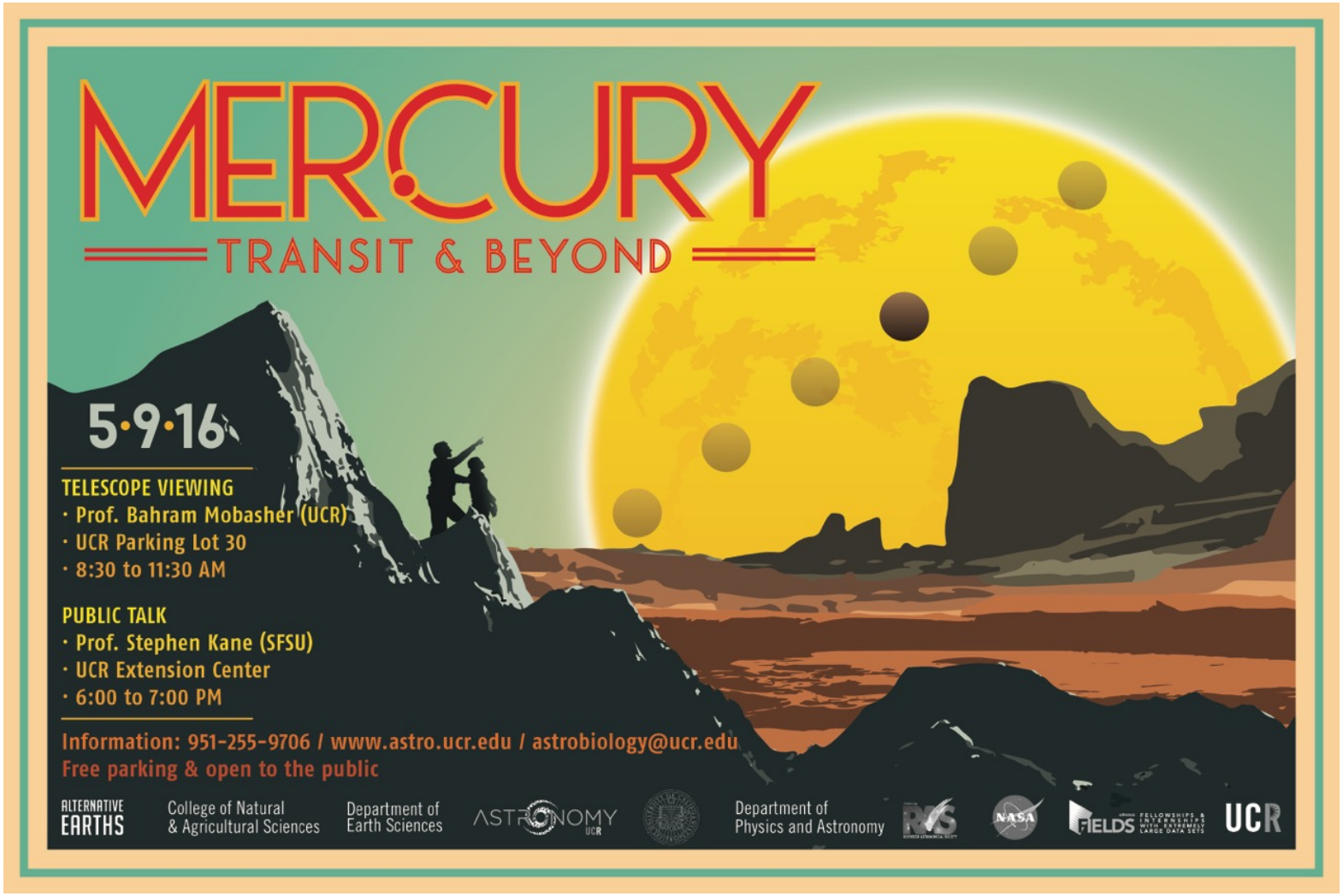
OUTREACH


Cosmic Thursdays
ALTERNATIVE EARTHS?
WHAT OUR PLANET'S HISTORY MAY TELL US ABOUT LIFE IN THE UNIVERSE
Prof. Timothy Lyons
Earth Sciences Department UC Riverside
THURSDAY OCTOBER 15 - 7:00 PM
Bourns Hall - Room A265
Free & open to the public
Suggested parking in lot 10
Information: mariodlw@ucr.edu
www.astro.ucr.edu
ucRIVERSIDE

Cosmic Thursdays
EVOLUTION OF LIFE
TRACKING USING ANCIENT LIPID BIOMARKERS PRESERVED IN PETROLEUM & ROCKS
Prof. Gordon Love
Earth Sciences Department UC Riverside
THURSDAY NOVEMBER 12 - 7:00 PM
Bourns Hall - Room A265
Free & open to the public
Suggested parking in lot 10
Information: mariodlw@ucr.edu
www.astro.ucr.edu
ucRIVERSIDE


MOPS, ROPES & BATHMATS
Earth's enigmatic earliest multicellular animals
Prof. Mary Droser
Department of Earth Sciences UC Riverside
THURSDAY DECEMBER 3 - 7:00 PM
Bourns Hall - Room A265
Free & open to the public
Suggested parking in lot 10
www.astro.ucr.edu
ucRIVERSIDE

COMMUNITY ENGAGEMENT



SPACE SHUTTLE
ENDEAVOUR

Hello
Najmeh

EDUCATION & REGIONAL COLLABORATION

JPL

NASA's Minority University Research and Education Project (MUREP) selected UC Riverside as one of 10 minority serving universities (out of 76 proposals) for 5 years of funding to support research collaboration with JPL.