





#### **European Research Council**

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# **LSP-MIST**

# A MISTery of Long Secondary Periods in Pulsating Red Giants - Traces of Exoplanets?

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## THE EXOPLANET ZOO





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# THE DISTRIBUTION OF KNOWN EXOPLANETS





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#### LONG SECONDARY PERIOD (LSP) VARIABLES

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-0.5

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OGLE-LMC-LPV-40086 P=395 d 1.0 1.5



0.5 Orbital Phase

0.0

#### LSP MISTery



optical

mid-IR





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# **AGB – SIMULATIONS AND DATA**





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# **AGB - SIMULATIONS AND DATA**



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#### WHAT IS THE COMPANION?



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low radial velocities











>30% LSPs among pulsating AGB stars

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# >30% LSPs among pulsating AGB stars



brown dwarf desert

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## WHAT IS THE COMPANION?





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## **PROJECT PLAN**







# **PROJECT PLAN**





#### **EXPECTED** RESULTS



#### Milky Way

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#### **EXPECTED RESULTS**





Large Magellanic Cloud

#### Milky Way

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## THE EXOPLANET ZOO





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