

"The Twinkle Space Mission: an update on the international collaborative exoplanet survey"

Max Joshua

Senior Development Manager, Blue Skies Space Ltd

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Abstract:

The Twinkle Space Mission is a space-based observatory that has been conceived to measure the atmospheric composition of exoplanets, stars and solar system objects. Twinkle's collaborative multi-year global survey programs will deliver visible and infrared spectroscopy of thousands of objects within and beyond our solar system, enabling participating scientists to produce world-leading research in planetary and exoplanetary science. Twinkle's growing group of international Founding Members have now started shaping the survey science program within focused Science Teams and Working Groups and will soon be delivering their first publications.

Twinkle will have the capability to provide simultaneous broadband spectroscopic characterization (0.5–4.5 μm) of the atmospheres of several hundred bright exoplanets, covering a wide range of planetary types. It will also be capable of providing phase curves for hot, short-period planets around bright stars targets and of providing ultra-precise photometric light curves to accurately constrain orbital parameters, including ephemerides and TTVs/TDVs present in multi-planet systems. This talk will present an overview of Twinkle's mission status and discuss some example exoplanet surveys to highlight the broad range of targets the mission could observe, demonstrating the scientific potential of the spacecraft. It will also report on the work of Twinkle's Exoplanet Science Team, which is formed of researchers from across the globe including the US, showcasing their science interests and the studies into Twinkle's capabilities that they have conducted since joining the mission.

Bio:

As the Senior Business Development Manager at Blue Skies Space, Max is working to realise the team's vision of creating a sustainable model for independent space missions that deliver high-impact science to meet the growing needs of the global research community. Our flagship satellite, the Twinkle Space Mission, will be at the forefront of the next phase of exoplanet science as the field shifts focus from detection to characterisation of these distant worlds. Since joining the mission at its initial stages in 2016, Max has overseen its growth from a fresh Phase A concept to a highly-developed mission, scientifically led and part-funded by a collaboration of 14 'founding member' institutions spanning 11 countries. Max's role has evolved as the mission has scaled up; in 2020 he relocated to Los Angeles to serve as the primary representative of Twinkle and Blue Skies Space in North America. He is responsible for bringing new members on board Twinkle, engaging with national funding bodies and space agencies, shaping the collaboration's principles and policies, and building awareness within the scientific community. His favourite part of the job is meeting and learning from diverse scientists around the world who devote their lives to solving the most challenging questions in (exo)planetary science.