



4545 - Brown dwarfs & free-floating planetary mass objects in the Rosette Nebula: imaging

Cycle: 3, Proposal Category: GTO

INVESTIGATORS

<i>Name</i>	<i>Institution</i>
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OBSERVATIONS

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
NIRCam imaging				
	1	NIRCam imaging	NIRCam Imaging	(1) NGC2244_core

ABSTRACT

In this programme, we will obtain a census of Planetary Mass Objects (PMOs) in the core of the low density star-forming cluster, NGC 2244, at the centre of the Rosette Nebula. To achieve this we will obtain deep NIRCam observations in 8 photometric filters (F115W, F140M, F162M, F182M, F300M, F335M, F360M, and F444W), which give us access to the effective temperature, dust extinction, circumstellar disk excess emission, and photometric indices sensitive to both H₂O and CH₄. These observations will be complete down to a limiting mass of 1MJup and will probe the very bottom of the initial mass function (IMF). The goal of this programme is to establish how local stellar density affects the abundance of PMOs in contrast to our ongoing GTO programme on the much denser Orion Nebula and Trapezium Cluster, and other young clusters being observed with JWST.

Version 1: 2023-06-28

OBSERVING DESCRIPTION

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Proposal 4545 - Targets - Brown dwarfs & free-floating planetary mass objects in the Rosette Nebula: imaging

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
	(1)	NGC2244_core	RA: 06 31 57.5200 (97.9896667d) Dec: +04 54 37.50 (4.91042d) Equinox: J2000	Proper Motion RA: 0 mas/yr Proper Motion Dec: 0 mas/yr Parallax: 0" Epoch of Position: 2000.0	<p><i>Comments: NGC2244 is a young star forming cluster (~1.4 Myr), located at a distance of 1.4kpc, and lies at the centre of the Rosette Nebula. The peak stellar density of NGC 2244 (~250-300 stars per square parsec) is 25 times less dense than that of moderate density clusters such as NGC1333 (~7,000 stars per square parsec), and 75 times less than high density clusters such as the ONC (~22,000 stars per square parsec). This significant contrast between star-forming environments presents a perfect opportunity to test the universality of the IMF in the planetary mass domain.</i></p> <p><i>Category=Stellar Cluster</i></p> <p><i>Description=[OB associations, Stellar associations, Young associations, Young star clusters]</i></p> <p><i>Extended=YES</i></p>

Proposal 4545 - Observation 1 - Brown dwarfs & free-floating planetary mass objects in the Rosette Nebula: imaging

Thu Jun 29 19:04:05 GMT 2023

Observation	<p>Proposal 4545, Observation 1: NIRCam imaging</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: NIRCam Imaging</p> <p><i>Comments: No specific PA is required for these observations, as rotating the mosaic around the centre yields more or less the same density of stars in the core of the cluster. But all visits should take place at the same PA to ensure a filled mosaic and accurate registration across the mosaic.</i></p>																																																											
Diagnostics	<p>(Visit 1:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p> <p>(Visit 1:2) Warning (Form): Data Excess over lower threshold</p> <p>(Visit 1:2) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p> <p>(Visit 1:3) Warning (Form): Data Excess over lower threshold</p> <p>(Visit 1:3) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p> <p>(Visit 1:4) Warning (Form): Data Excess over lower threshold</p> <p>(Visit 1:4) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>																																																											
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Special Requirements

Group Visits within 53.0 Days
Visits Same PA