



15991 - The Deaths of Stellar Dynamos: Digging in the Magnetic Graveyard for Old Cold Coronae

Cycle: 27, Proposal Category: GO
(Availability Mode: SUPPORTED)

INVESTIGATORS

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|--|---|------------------------------|
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VISITS

| <i>Visit</i> | <i>Targets used in Visit</i> | <i>Configurations used in Visit</i> | <i>Orbits Used</i> | <i>Last Orbit Planner Run</i> | <i>OP Current with Visit?</i> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 01 | (1) -LAM-SER | COS/FUV | 1 | 21-Jan-2020 13:00:40.0 | yes |
| 02 | (2) -B-AQL | COS/FUV | 1 | 21-Jan-2020 13:00:41.0 | yes |

2 Total Orbits Used

ABSTRACT

Sun-like stars exhibit three distinct phases of magnetic evolution. In the saturated regime, the X-ray luminosity is independent of the rapid rotation. For slightly older stars in the unsaturated regime, the X-ray luminosity declines in tandem with rotation. Recent observational evidence suggests that near the middle of their main-sequence lifetimes, stars may enter a third regime in which rotation remains nearly constant while magnetic activity continues to decline. We propose to measure X-ray luminosities for three stars with a range of spectral types and metallicities, to identify the signature of this third regime in the old cold coronae of stars that appear to have shut down their global dynamos. We will use previous observations to help constrain the coronal temperatures.

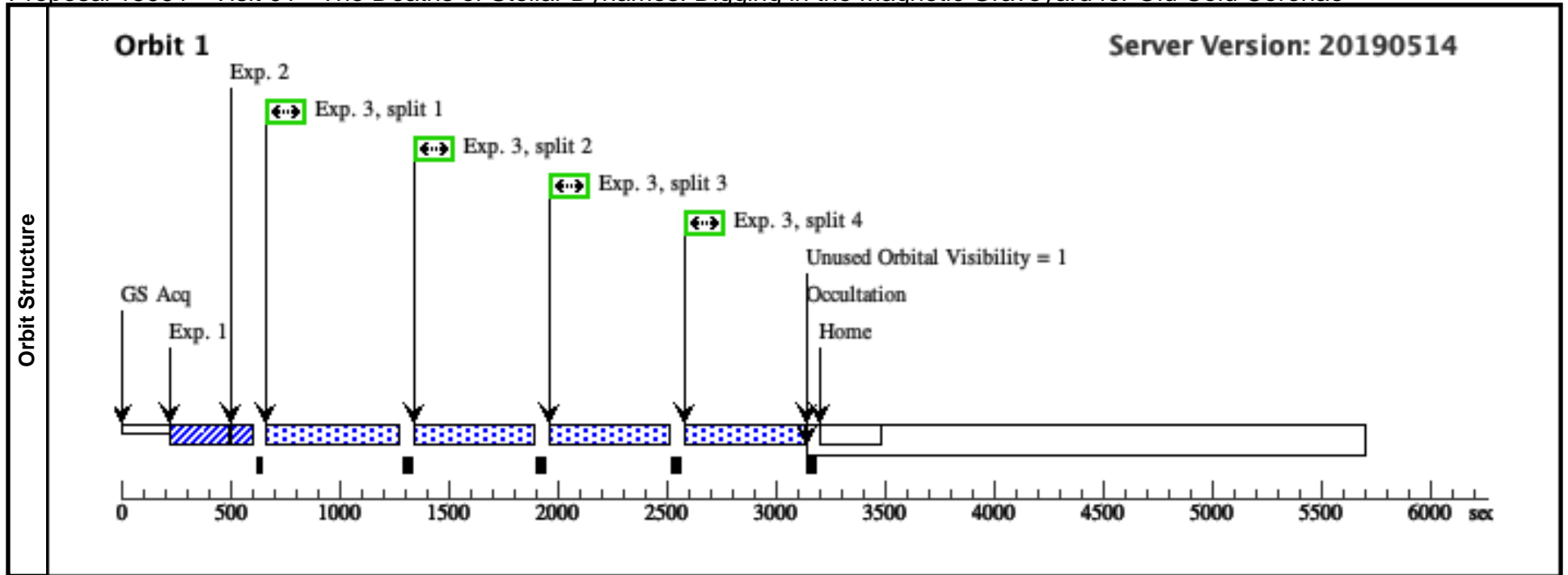
OBSERVING DESCRIPTION

We desire FUV low resolution (G140L) observations of two bright, low activity stars, one orbit each. Both have GAIA coordinates, so an ACQ/SEARCH is not needed. Both are bright and so target ACQ is in spectroscopic mode (PEAKXD and PEAKD), but UV dim enough that time-tag mode is possible. After target ACQ, the remainder of the orbit is spent with the science observation for each star.

Proposal 15991 - Visit 01 - The Deaths of Stellar Dynamos: Digging in the Magnetic Graveyard for Old Cold Coronae

Tue Jan 21 18:00:41 GMT 2020

| Visit | Proposal 15991, Visit 01, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/FUV Special Requirements: (none) | | | | | | | | | |
|-----------|---|-------------------|----------------------------------|---|---|--|-----------------------|--------|--|-------|
| | Fixed Targets | # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous | | | |
| | | (1) | -LAM-SER Alt Name1: HD-141004 | RA: 15 46 26.3809 (236.6099204d) Dec: +07 21 9.97 (7.35277d) Equinox: J2000 | Proper Motion RA: -0.015064340775332072 sec of time/yr Proper Motion Dec: -0.06938400006220036 arcsec/yr Parallax: 0.0846" Epoch of Position: 2015.5 | V=4.42 | Reference Frame: ICRS | | | |
| | <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. Confirmed to be ICRS J2000 epoch 2015.5 from GAIA.</i> Category=STAR Description=[G V-IV] Extended=NO | | | | | | | | | |
| Exposures | # | Label (ETC Run) | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
| | 1 | (COS.sa.139 3623) | (1) -LAM-SER | COS/FUV, ACQ/PEAKXD, PSA | G140L 1280 A | NUM-POS=3; STEP-SIZE=1.3; CENTER=FLUX-W T | | | 3 Secs (3 Secs) [==>] | [1] |
| | 2 | (COS.sa.139 3623) | (1) -LAM-SER | COS/FUV, ACQ/PEAKD, PSA | G140L 1280 A | STEP-SIZE=1.3; NUM-POS=3; CENTER=FLUX-W T | | | 3 Secs (3 Secs) [==>] | [1] |
| | 3 | (COS.sp.139 3630) | (1) -LAM-SER | COS/FUV, TIME-TAG, PSA | G140L 1280 A | BUFFER-TIME=20 56; FP-POS=ALL | | | 495 Secs (1976 Secs) [==>494.0 Secs (Split 1)] [==>494.0 Secs (Split 2)] [==>494.0 Secs (Split 3)] [==>494.0 Secs (Split 4)] | [1] |



Proposal 15991 - Visit 02 - The Deaths of Stellar Dynamos: Digging in the Magnetic Graveyard for Old Cold Coronae

Tue Jan 21 18:00:42 GMT 2020

| Visit | Proposal 15991, Visit 02, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/FUV Special Requirements: (none) | | | | | | | | | |
|-----------|---|-------------------|--------------------------------|---|---|--|-----------------------|--------|--|-------|
| | Fixed Targets | # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous | | | |
| | | (2) | -B-AQL Alt Name1: HD-182572 | RA: 19 24 58.9618 (291.2456742d) Dec: +11 56 49.85 (11.94718d) Equinox: J2000 | Proper Motion RA: 0.04913376048920273 sec of time/yr Proper Motion Dec: 0.643379 arcsec/yr Parallax: 0.06685" Epoch of Position: 2015.5 | V=5.17 | Reference Frame: ICRS | | | |
| | <i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. Confirmed to be ICRS J2000 epoch 2015.5 from GAIA.</i> Category=STAR Description=[G V-IV] Extended=NO | | | | | | | | | |
| Exposures | # | Label (ETC Run) | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
| | 1 | (COS.sa.139 3669) | (2) -B-AQL | COS/FUV, ACQ/PEAKXD, PSA | G140L 1280 A | NUM-POS=3; CENTER=FLUX-W T; STEP-SIZE=1.3 | | | 19 Secs (19 Secs) [==>] | [1] |
| | 2 | (COS.sa.139 3669) | (2) -B-AQL | COS/FUV, ACQ/PEAKD, PSA | G140L 1280 A | STEP-SIZE=1.3; CENTER=FLUX-W T; NUM-POS=3 | | | 19 Secs (19 Secs) [==>] | [1] |
| | 3 | (COS.sp.139 3668) | (2) -B-AQL | COS/FUV, TIME-TAG, PSA | G140L 1280 A | BUFFER-TIME=58 92; FP-POS=ALL | | | 361 Secs (1940 Secs) [==>485.0 Secs (Split 1)] [==>485.0 Secs (Split 2)] [==>485.0 Secs (Split 3)] [==>485.0 Secs (Split 4)] | [1] |

