10765 - The Discrete X-ray Source Population in NGC~5253, our nearest post-starburst
Cycle: 14, Proposal Category: GO
(Availability Mode: SUPPORTED)

INVESTIGATORS

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>E-Mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Andreas Zezas (PI)</td>
<td>Smithsonian Institution Astrophysical Observatory</td>
<td><a href="mailto:azezas@cfa.harvard.edu">azezas@cfa.harvard.edu</a></td>
</tr>
<tr>
<td>Dr. Vicky Kalogera (Col)</td>
<td>Northwestern University</td>
<td><a href="mailto:vicky@northwestern.edu">vicky@northwestern.edu</a></td>
</tr>
<tr>
<td>Prof. John S. Gallagher III (Col)</td>
<td>University of Wisconsin - Madison</td>
<td><a href="mailto:jsg@astro.wisc.edu">jsg@astro.wisc.edu</a></td>
</tr>
<tr>
<td>Dr. Giuseppina Fabbiano (Col)</td>
<td>Smithsonian Institution Astrophysical Observatory</td>
<td><a href="mailto:pepi@cfa.harvard.edu">pepi@cfa.harvard.edu</a></td>
</tr>
<tr>
<td>Dr. Daniela Calzetti (Col)</td>
<td>Space Telescope Science Institute</td>
<td><a href="mailto:calzetti@stsci.edu">calzetti@stsci.edu</a></td>
</tr>
<tr>
<td>Dr. Andrea H. Prestwich (Col)</td>
<td>Smithsonian Institution Astrophysical Observatory</td>
<td><a href="mailto:aprestwich@cfa.harvard.edu">aprestwich@cfa.harvard.edu</a></td>
</tr>
</tbody>
</table>

VISITS

<table>
<thead>
<tr>
<th>Visit</th>
<th>Targets</th>
<th>Configurations</th>
<th>Orbits Used</th>
<th>Last Orbit Planner Run</th>
<th>OP Current with Visit?</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>(1) NGC5253-FIELD1 (2) NGC5253-FIELD2</td>
<td>ACS/WFC</td>
<td>3</td>
<td>12-Oct-2005 21:08:34.0</td>
<td>yes</td>
</tr>
</tbody>
</table>

3 Total Orbits Used

ABSTRACT

We propose a 140ksec ACIS-S and HST-ACS observations of NGC5253, our nearest post-starburst galaxy. This observation, together with archival data, will yield a sensitivity limit of 5x10^35 erg/s allowing us to detect for the first time in an evolved star-burst galaxy, the vast majority of active HMXBs. Our major goal is to compare the various X-ray source populations (distinguished from their X-ray and optical properties) and associate
Proposal 10765 - Overview

them with the evolutionary stage of the starburst. By combining these data with observations of other nearby star-forming galaxies which with NGC~5253 form a starburst age sequence, we will investigate the variations of the XRB populations (and their XLF) as a function of the starburst age. This way we will test XRB population synthesis models.

OBSERVING DESCRIPTION

We will observe NGC5253 in three filters (F435W, F555W, F814W) with exposures of 880sec, 1200sec and 1150sec respectively. We use a 2-point dither pattern in order to remove cosmic rays and obtain some exposure over the chip gap. We observe two fields offset from the galaxy nucleus in order to cover the whole galaxy. The two fields overlap in the central part of the galaxy to provide deeper coverage. Each exposure has been adjusted in order for the observations to fit in the three orbits.
Proposal 10765 - Visit 01 - The Discrete X-ray Source Population in NGC~5253, our nearest post-starburst

Visit

<table>
<thead>
<tr>
<th>#</th>
<th>Primary Pattern</th>
<th>Secondary Pattern</th>
<th>Exposures</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Pattern Type=ACS-WFC-DITHER-LINE</td>
<td>Coordinate Frame=POS-TARG</td>
<td>(1-3), (4-6)</td>
</tr>
<tr>
<td></td>
<td>Purpose=DITHER</td>
<td>Pattern Orientation=85.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number Of Points=2</td>
<td>Angle Between Sides=</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Point Spacing=3.011</td>
<td>Center Pattern=false</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Line Spacing=</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Patterns

<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
<th>Target Coordinates</th>
<th>Targ. Coord. Corrections</th>
<th>Fluxes</th>
<th>Miscellaneous</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>NGC5253-FIELD1</td>
<td>RA: 13 39 59.0000 (204.9958333d) Dec: -31 37 40.50 (-31.62792d) Equinox: J2000 Plate Id: (?)</td>
<td></td>
<td>V=10.99</td>
<td>Coordinate Source: GSC_SURVEY_PLATE</td>
</tr>
<tr>
<td>(2)</td>
<td>NGC5253-FIELD2</td>
<td>RA: 13 39 52.0000 (204.9666667d) Dec: -31 39 8.00 (-31.65222d) Equinox: J2000 Plate Id: (?)</td>
<td></td>
<td>V=10.99</td>
<td>Coordinate Source: GSC_SURVEY_PLATE</td>
</tr>
</tbody>
</table>

Fixed Targets

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(1) NGC5253-FIEL D1</td>
<td>ACS/WFC, ACCUM, WFCENTER</td>
<td>F555W</td>
<td>CR-SPLIT=NO</td>
<td>Pattern 1-3 (1)</td>
<td>600.0 Secs</td>
<td>[==&gt;(Pattern 1)]</td>
<td>[1]</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>(1) NGC5253-FIEL D1</td>
<td>ACS/WFC, ACCUM, WFCENTER</td>
<td>F435W</td>
<td>CR-SPLIT=NO</td>
<td>Pattern 1-3 (1)</td>
<td>360.0 Secs</td>
<td>[==&gt;(Pattern 1)]</td>
<td>[1]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>[==&gt;(Pattern 2)]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>(1) NGC5253-FIEL D1</td>
<td>ACS/WFC, ACCUM, WFCENTER</td>
<td>F814W</td>
<td>CR-SPLIT=NO</td>
<td>Pattern 1-3 (1)</td>
<td>500.0 Secs</td>
<td>[==&gt;(Pattern 1)]</td>
<td>[1]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>[==&gt;(Pattern 2)]</td>
<td></td>
<td></td>
<td>[2]</td>
</tr>
<tr>
<td>4</td>
<td>(2) NGC5253-FIEL D2</td>
<td>ACS/WFC, ACCUM, WFCENTER</td>
<td>F555W</td>
<td>CR-SPLIT=NO</td>
<td>Pattern 4-6 (1)</td>
<td>600.0 Secs</td>
<td>[==&gt;(Pattern 1)]</td>
<td>[2]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>[==&gt;(Pattern 2)]</td>
<td></td>
<td></td>
<td>[3]</td>
</tr>
<tr>
<td>5</td>
<td>(2) NGC5253-FIEL D2</td>
<td>ACS/WFC, ACCUM, WFCENTER</td>
<td>F814W</td>
<td>CR-SPLIT=NO</td>
<td>Pattern 4-6 (1)</td>
<td>500.0 Secs</td>
<td>[==&gt;(Pattern 1)]</td>
<td>[2]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>[==&gt;(Pattern 2)]</td>
<td></td>
<td></td>
<td>[3]</td>
</tr>
<tr>
<td>6</td>
<td>(2) NGC5253-FIEL D2</td>
<td>ACS/WFC, ACCUM, WFCENTER</td>
<td>F435W</td>
<td>CR-SPLIT=NO</td>
<td>Pattern 4-6 (1)</td>
<td>360.0 Secs</td>
<td>[==&gt;(Pattern 1)]</td>
<td>[3]</td>
<td></td>
</tr>
</tbody>
</table>
Proposal 10765 - Visit 01 - The Discrete X-ray Source Population in NGC~5253, our nearest post-starburst