NGC 2204 lies in the Canis Major constellation, close to Sirius. Cluster metallicity, age, distance, and reddening.

Intermediate age from previous clusters analyzed for Lithium.

Validity of this data requires high accuracy in the following:
- Stellar temperature and mass
- Declination of -18°39'
- Right ascension of 6

Our research goals included increasing the global knowledge of this cluster with more precise values for these values as well as identifying and verifying cluster members.

Methods:
- The images were corrected with the use of standard processing techniques including sky flats, dome flats, bias subtraction, and overscan correction.
- Magnitudes were obtained for stars in each image.
  - All stars were measured using the daophot package point-spread function fitting photometry.
  - Resulting data was filtered to remove potential false detections and stars of suboptimal roundness, sharpness, or brightness.
- The photometric data collected were combined and averaged into master catalogs for each filter.
- We then calibrated this master catalog of instrumental measurements against Landolt standards taken the same night according to the Landolt catalog (L92) in order to arrive at standardized magnitudes.
- Histograms of Gaia DR2 (Gaia) proper motions were used to select cluster members which guided the construction of the MS fiducial set.
- Color-color diagrams were used to fit the resulting fiducial to several expected curves for reddening and metallicity of cluster.
- Color-magnitude diagrams used to obtain values for distance and age.
  - Theoretical isochrones adjusted for reddening and extinction.
  - Distance modulus determined by matching isochrones to main sequence beneath turnoff.
  - Age determined by matching isochrones to turn-off and subgiant branch.

Results presented in table below:

<table>
<thead>
<tr>
<th>Reddening E(B-V)</th>
<th>Metallicity [Fe/H]</th>
<th>Age (Gyr)</th>
<th>Distance Modulus</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.081 ±0.010</td>
<td>-0.45 ±0.05</td>
<td>2.21 ±0.10</td>
<td>13.14 ±0.10</td>
</tr>
</tbody>
</table>

Discussion:
- Photometric result were compared to that of a 1997 Kassis paper (K97) as well as a 1976 Hawarden paper (H76).
  - It was found that our data agreed well with the Hawarden paper, yielding offsets of -0.057, -0.0073, and -0.019 in the U, B, and V frames respectively.
  - Our data showed a spread of disparities with the Kassis data sets, averaging at offsets of -0.053, -0.038, and -0.020 in the B, V, and I frames for the first data set and -0.042 and -0.023 in the V and I frames.
  - Predicted metallicity is about 0.10 lower than previously recorded.
  - Predicted age of about 0.61 Gyr older than previously discussed.
- Future research on NGC 2204 may yield significant data on the Lithium abundance problem and increased insight into the Standard Model.

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References:
- WEBDA open cluster database: https://webda.physics.muni.cz
- Messier Catalog: http://www.messier.seds.org/indexes.html