The Sloan Digital Sky Survey (SDSS) and Sloan Extension for Galactic Understanding and Exploration (SEGUE) offer an unprecedented stellar database with which to explore the properties of the thin disk, thick disk, and halo of the Galaxy. To make full use of the information contained in the available spectra and photometry, we require external checks on determinations of radial velocity, effective temperature, surface gravity, and metal abundance for stars in the SDSS/SEGUE database. One useful approach is to make use of the large number of stars in open and globular clusters that have been observed in SDSS/SEGUE.

As examples, we present color-magnitude diagrams, in the SDSS $ugriz$ system, for three Galactic globular clusters, M 2, M 13, M 15, and one open cluster NGC 2420, based on photometry reported in the third SDSS public data release, DR-3. These data are compared with recent isochrones. In addition, we report overall metallicities and radial velocities for the clusters, which are determined from medium-resolution ($2.3 \, \text{Å}$) spectra of likely members of each cluster. These data are used to provide an independent check on the accuracy with which we can estimate the radial velocities and atmospheric parameters ($T_{\text{eff}}, \log g, [\text{Fe/H}]$) for SEGUE stars that will be obtained during the course of SEGUE.

**SDSS SEGUE Data**

The Sloan Digital Sky Survey (SDSS) is a multi-band photometric and spectroscopic survey of a large fraction of the northern sky obtained with the 2.5m telescope at Apache Point Observatory in New Mexico (York et al. 2000). As of July, 2005, the first phase of the survey (SDSS-I) was finished and since then SDSS-II has begun. SEGUE is one of three key projects in SDSS-II: H-LEGACY, SEGUE, SUPERNOVA SURVEY.

SEGUE photometric data will cover 3,500 squared degrees and are processed by fitting PSFs to flattened, sky-subtracted CCD frames. The photometric accuracy is roughly 2% in $g$, $r$, and $i$ and 3% in $z$ and $u$ for all stellar objects brighter than $g \approx 20$ (Stoughton et al. 2002). Spectroscopic data have a wavelength range of 3,800 – 9,000 Å at a resolution of about $R = 1800$ ($2.3 \, \text{Å}$). For stars brighter than $g \approx 19.5$, velocities are obtained by fits to a series of standard stellar templates and the accuracy is about 10 km/s.

**Cluster Properties**

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>M 15</td>
<td>21:29:58.3</td>
<td>-0.38</td>
<td>11.95</td>
<td>15.83</td>
<td>-107.0 (-115.3)</td>
<td>0.05 (0.05)</td>
</tr>
<tr>
<td>M 2</td>
<td>21:32:29.3</td>
<td>11.78</td>
<td>14.55</td>
<td>16.00</td>
<td>-245.6 (-250.1)</td>
<td>0.02 (0.042)</td>
</tr>
<tr>
<td>M 13</td>
<td>16:41:41.5</td>
<td>15.49</td>
<td>14.48</td>
<td>15.85</td>
<td>+67 (+67.2)</td>
<td>0.05 (0.050)</td>
</tr>
<tr>
<td>M 2420</td>
<td>07:38:30.0</td>
<td>15.37</td>
<td>14.48</td>
<td>16.00</td>
<td>+67 (+67.2)</td>
<td>0.05 (0.050)</td>
</tr>
</tbody>
</table>

GCs from Harris (1996); NGC 2420 from Friel et al. (2002). Numbers in red are our estimates.

**Summary**

We obtained CMDs and isochrones for three galactic globular clusters, M 2, M 13, M 15, and one open cluster NGC 2420. Isochrones are generally well matched, except for the upper red giant branch regions for GCs, where the isochrones are suspect. We are seeking to improve these isochrones at present. The overall metallicity and radial velocity of each cluster are calculated based on medium-resolution ($2.3 \, \text{Å}$) spectra for likely members of the clusters by fitting Gaussians to the metallicity and radial velocity distributions of likely members. Overall averages are consistent with the values in the literature. In particular, determination of the velocity is accurate to within 10 km/s and overall metallicities deviate by no more than 0.25 - 0.3 dex among the selected cluster members.

**References**

Girardi, L., Grebel, E. K., Odenkirchen, M., Color and metallicity determination of galactic globular clusters, AJ, 128, 1487

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