The Environment of Late Type Low Surface Brightness Galaxies
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Using the SDSS DR6 we investigated the environment properties of a complete and volume limited sample of 1072 low surface brightness galaxies (LSBs) and 48487 high surface brightness galaxies (HSBs) in the redshift interval $0.02 < z < 0.06$ with $M_r < -18.5$. We observe a significant deficit of neighbours around LSBs at small scales, while at larger radii, both distributions tend to merge. Our result supports the scenario in which the isolation of LSBs at intermediate and small scales must have affected their evolution since tidal encounters acting as a trigger for star formation would have been rarer in these galaxies than in HSBs.

What are Low Surface Brightness Galaxies (LSBs)?
LSBs are characterized by a central disk surface brightness (SB) in the blue band $\mu_B > 22.5$ mag arcsec$^{-2}$. They present low star formation rate, low metallicity (usually sub-solar), higher gas fractions compared to HSBs and most of the gas under the form of HI, among others characteristics.

Why study LSBs environment?
Because their properties suggest that LSBs are some sort of unevolved systems as a result of a history traced by the lack of gravitational instabilities in their gas disks (van der Hulst et al. 1993).

Low Surface Brightness galaxies tend to have a lack of nearby companions compared to High Surface Brightness galaxies

Sphere Count
We count the number of tracer galaxies included in spheres of fixed radius centred in every of the target sample galaxies. We vary the radius from 0.5 to 5 Mpc in steps of 0.5 Mpc.

The results listed above supports the scenario presented for Bothun et al. 1997, in which the isolation of LSBs at intermediate and small scales must have affected their evolution since tidal encounters acting as a trigger for star formation would have been rarer in these galaxies than in HSB galaxies.

Distance to the First and Fifth Nearest Neighbour
We calculated the distance to the first and the fifth nearest neighbour for every target galaxy. A velocity difference lower than 1000 km s$^{-1}$ was required between the target and the tracer galaxy in order to avoid projection effects.

The Sample:
The target sample consists of 1072 LSB and 48487 HSB spectroscopic late type galaxies between $0.02 < z < 0.06$, $\mu_r(1) < 23.00$ mag arcsec$^{-2}$ and $M_r < 1.8$. The tracer sample contains 74754 galaxies with $M_r < -18.5$ and $0.0195 < z < 0.0605$.  

Table 1 summarizes the results obtained from the sphere count and the neighbour distance analysis graphically shown in Figures 3 and 4.

<table>
<thead>
<tr>
<th>Galaxy Classification</th>
<th>Mean distance to the nearest neighbour (Mpc)</th>
<th>Mean distance to the fifth neighbour (Mpc)</th>
<th>Galaxies without neighbours within 0.5 Mpc</th>
<th>Galaxies with 8 or more neighbours within 2 Mpc</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSB</td>
<td>1072</td>
<td>0.99 ± 0.02</td>
<td>1.88 ± 0.04</td>
<td>86 %</td>
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<td></td>
<td></td>
<td></td>
<td>13 %</td>
<td></td>
</tr>
<tr>
<td>HSB</td>
<td>48487</td>
<td>0.81 ± 0.01</td>
<td>1.62 ± 0.01</td>
<td>76 %</td>
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<td></td>
<td></td>
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<td>21 %</td>
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