

# A study of galaxies near low-redshift quasars

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The impact of quasars on their galaxy neighbors is an important factor in the understanding of the galaxy evolution models. The aim of this work is to characterize the close environments of quasars at low redshift ( $z < 0.2$ ) with the most statistically complete sample up to date using the seventh data release of the Sloan Digital Sky Survey. We have used 305 quasar-galaxy associations with spectroscopically measured redshifts within the projected distance range of 350 kpc, to calculate how surface densities of galaxies, colors, star-formation rates, oxygen abundances, dust extinction and ionization changes as a function of the distance to the quasars. We also identify and exclude the AGN from our main galaxy sample and calculate surface density of different galaxy types. We have done this in three different quasar-galaxy redshift difference ranges  $|\Delta z| < 0.001$ ,  $0.006$ , and  $0.012$ . Our results suggest that there is a significant increase of the galaxy surface density around quasars, indicating quasar formation by merging scenario. We also observe a gap in the surface densities of AGN and blue galaxies at a distance of approximately 150 kpc from the quasar. We see no significant changes of star formation rate, color and ionization as function of distance from the quasar. From this investigation we cannot see any effects from quasars on their galaxy companions.

Comments: Master thesis in astronomy; quasars; galaxies; environments; SDSS

Subjects: **Cosmology and Extragalactic Astrophysics (astro-ph.CO)**

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