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The stellar populations of host galaxies of supernovae

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Abstract. We study and compare the stellar populations of host galaxies of different types of supernovae (SNe): SN Ia and core collapse SN (SN II and SN Ibc) at the same time. The 234 sample galaxies are selected by cross-matching the Asiago Supernova Catalogue (ASC) and the SDSS-DR7 main galaxy sample (MGS). The STARLIGHT software is used to analyze their stellar populations by fitting the continua and absorption lines of the hosts.

Keywords. galaxies: evolution, galaxies: star formation, galaxies: starburst

We performed cross-matching on the ASC and the SDSS-DR7 MGS with 30 arcsec radius to select supernova host galaxies. We select galaxies for which the light-fraction (see details in Liang *et al.* 2010) of their SDSS spectral observations are > 0.15 to ensure that the 3 arcsec fiber can cover most of their global light. In total 234 SN host galaxies are selected, which are divided into two subsamples: emission-line galaxies and absorption-line galaxies. We fit the stellar continua and absorption lines of the hosts using Starlight (Cid Fernandes *et al.* 2005, Chen *et al.* 2009). The results are shown in Table 1. Among the 137 emission-line galaxies, the fraction of young stellar populations is higher in hosts of SN II than in hosts of SN Ia and Ibc. Mots of the 97 absorption-line galaxies host a SN Ia, and they have a large fraction of old stellar populations. The 137 hosts with emission lines contain much younger stellar populations.

Table 1. The contributed light fraction of stellar populations in age-bins for SN host galaxies.

	emission-line galaxies	absorption-lines galaxies
hosts of	SN Ia SN II SN Ibc	SN Ia SN II SN Ibc
Young (<0.2Gyr)	30.2 56.5 22.2	12.5 26.8 25.8
Intermediate (0.2-2Gyr)	42.2 31.5 51.6	28.0 30.1 39.2
Old (>2Gyr)	27.6 12.0 26.2	59.5 43.1 35.0

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