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Authors	Bonzini, M., Mainieri, V., Padovani, P., Andreani, P., Berta, S., Bethermin, M., Lutz, D., Rodighiero, G., Rosario, D., TOZZI, Paolo, Vattakunnel, S.
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J/MNRAS/453/1079 Sub-mJy radio sources SF properties (Bonzini+, 2015)

Star formation properties of sub-mJy radio sources.

Bonzini M., Mainieri V., Padovani P., Andreani P., Berta S., Bethermin M., Lutz D., Rodighiero G., Rosario D., Tozzi P., Vattakunnel S.

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=[2015MNRAS.453.1079B](#) (SIMBAD/NED BibCode)

ADC_Keywords: Active gal. nuclei ; Infrared sources ; Radio sources

Keywords: surveys - galaxies: active - galaxies: starburst - galaxies: star formation - radio continuum: galaxies

Abstract:

We investigate the star formation properties of ~800 sources detected in one of the deepest radio surveys at 1.4GHz. Our sample spans a wide redshift range (~0.1-4) and about four orders of magnitude in star formation rate (SFR). It includes both star-forming galaxies (SFGs) and active galactic nuclei (AGNs), further divided into radio-quiet (RQ) and radio-loud objects. We compare the SFR derived from the far-infrared luminosity, as traced by Herschel, with the SFR computed from their radio emission. We find that the radio power is a good SFR tracer not only for pure SFGs but also in the host galaxies of RQ AGNs, with no significant deviation with redshift or specific SFR. Moreover, we quantify the contribution of the starburst activity in the SFG population and the occurrence of AGNs in sources with different level of star formation. Finally, we discuss the possibility of using deep radio survey as a tool to study the cosmic star formation history.

Description:

In this work, we investigated the SF properties of the faint radio population as detected by one of the deepest 1.4 GHz survey up-to-date conducted with the VLA in the E-CDFS. This study builds upon the results presented in Bonzini et al. (2012, Cat. [J/ApJS/203/15](#) and 2013, Cat. [J/MNRAS/436/3759](#)) where we have exploited the wealth of multiwavelength data available in this field to identify the AGNs, further divide them into RL and RQ, and characterize the properties of the radio selected galaxies (e.g. redshift, stellar mass).

File Summary:

FileName	Lrecl	Records	Explanations
ReadMe	80	.	This file
tableb1.dat	99	779	Star formation properties of the VLA sources

See also:

[J/ApJS/203/15](#) : Counterparts to 1.4GHz sources in ECDF-S (Bonzini+, 2012)
[J/MNRAS/436/3759](#) : ECDFS sources optical/IR counterparts (Bonzini+, 2013)

Byte-by-byte Description of file: [tableb1.dat](#)

Bytes	Format	Units	Label	Explanations
1- 3	I3	---	RID	Identification number of the radio source, [MBF2013] NNN in Simbad
5- 10	A6	---	Class	Source classification
12- 14	A3	---	Type	Source activity (1).
16- 20	F5.3	---	z	?=- Source redshift
23- 29	F7.4	[Msun]	logMstar	?=- Stellar mass
31- 36	F6.4	[Msun]	e_logMstar	?=- rms uncertainty on logMstar
38- 48	F11.4	Msun/yr	SFRr	?=- SFR derived from the radio power
50- 58	F9.4	Msun/yr	e_SFRr	?=- rms uncertainty on SFRr
60- 69	F10.4	Msun/yr	SFRfir	?=- SFR derived from the FIR luminosity
71- 79	F9.4	Msun/yr	e_SFRfir	?=- rms uncertainty on sfrFIR
82- 89	F8.4	[-]	logsSFR	?=- Specific SFR (SFR divided by the stellar mass)
91- 97	F7.4	[-]	logsSFRex	?=- Distance with respect to the MS in the SFR-Mstar plane (Section 8.3)
99	A1	---	PACS?	[0-1] PACS flag (2).

Note (1): source activity as follows:

SB = starburst galaxies
 MS = main-sequence galaxies
 P = passive galaxies according to the definition given in Section 8

Note (2): PACS flag as follows:

0 = only upper limits in the PACS bands
 1 = at least one PACS detection

History:

From electronic version of the journal

(End)

Patricia Vannier [CDS]

15-Mar-2016

The document above follows the rules of the [Standard Description for Astronomical Catalogues](#); from this documentation it is possible to generate *f77* program to load files [into arrays](#) or [line by line](#)

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