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<b>Title</b>	VizieR Online Data Catalog: LoTSS/HETDEX. Optical quasars. I. (Guerkan+, 2019)
<b>Authors</b>	Guerkan, G.; Hardcastle, M. J.; Best, P. N.; Morabito, L. K.; PRANDONI, ISABELLA; et al.
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<b>Journal</b>	VizieR Online Data Catalog



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J/A+A/622/A11 LoTSS/HETDEX. Optical quasars. I. (Guerkan+, 2019)

LoTSS/HETDEX: Optical quasars.

I. Low-frequency radio properties of optically selected quasars.

Guerkan G., Hardcastle M.J., Best P.N., Morabito L.K., Prandoni I., Jarvis M.J., Duncan K.J., Calistro Rivera G., Callingham J.R., Cochrane R.K., Croston J.H., Heald G., Mingo B., Mooney S., Sabater J., Roettgering H.J.A., Shimwell T.W., Smith D.J.B., Tasse C., Williams W.L.  
<Astron. Astrophys. 622, A11 (2019)>  
=2019A&A...622A..11G (SIMBAD/NED BibCode)

**ADC\_Keywords:** Surveys ; QSOs ; Radio sources**Keywords:** quasars: general - galaxies: active - radio continuum: galaxies**Abstract:**

The radio-loud/radio-quiet (RL/RQ) dichotomy in quasars is still an open question. Although it is thought that accretion onto supermassive black holes in the centre the host galaxies of quasars is responsible for some radio continuum emission, there is still a debate as to whether star formation or active galactic nuclei (AGN) activity dominate the radio continuum luminosity. To date, radio emission in quasars has been investigated almost exclusively using high-frequency observations in which the Doppler boosting might have an important effect on the measured radio luminosity, whereas extended structures, best observed at low radio frequencies, are not affected by the Doppler enhancement. We used a sample of quasars selected by their optical spectra in conjunction with sensitive and high-resolution low-frequency radio data provided by the LOw Frequency ARray (LOFAR) as part of the LOFAR Two-Metre Sky Survey (LoTSS) to investigate their radio properties using the radio loudness parameter ( $R=L_{144\text{MHz}}/L_{\text{iband}}$ ). The examination of the Li band radio continuum emission and RL/RQ dichotomy in quasars exhibits that quasars show a wide continuum of radio properties (i.e. no clear bimodality in the distribution of R). Radio continuum emission at low frequencies in low-luminosity quasars is consistent with being dominated by star formation. We see a significant albeit weak dependency of R on the source nuclear parameters. For the first time, we are able to resolve radio morphologies of a considerable number of quasars. All these crucial results highlight the impact of the deep and high-resolution low-frequency radio surveys that foreshadow the compelling science cases for the Square Kilometre Array (SKA).

**Description:**

Low-frequency radio continuum, far-infrared measurements and derived of properties of SDSS quasars over the HETDEX and H-ATLAS/NGP regions.

**File Summary:**

FileName	Lrecl	Records	Explanations
ReadMe	80	.	This file
<a href="#">catalog.dat</a>	262	49925	Measured properties of SDSS quasars

**See also:**

- [J/ApJS/194/45](#) : QSO properties from SDSS-DR7 (Shen+, 2011)  
[J/ApJS/228/9](#) : Physical parameters of ~300000 SDSS-DR12 QSOs (Kozlowski, 2017)
- [J/A+A/622/A1](#) : LOFAR Two-metre Sky Survey DR1 source catalog (Shimwell+, 2019)  
[J/A+A/622/A4](#) : LOFAR observations XMM-LSS field (Hale+, 2019)  
[J/A+A/622/A8](#) : NGC 3184, 4736, 5055 and 5194 LOFAR & WSRT maps (Heesen+, 2019)  
[J/A+A/622/A11](#) : LoTSS/HETDEX. Optical quasars. I. (Guerkan+, 2019)  
[J/A+A/622/A13](#) : VLA double-double radio galaxy candidates images (Mahatma+, 2019)
- [J/A+A/622/A15](#) : Broad absorption line quasars in LDR1 (Morabito+, 2019)  
[J/A+A/622/A22](#) : Abell 1914 multiwavelength radio images (Mandal+, 2019)  
[J/A+A/622/A23](#) : LoTSS HCG and MLCG systems (Nikiel-wroczyński+, 2019)

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

Bytes	Format	Units	Label	Explanations
1- 18	A18	---	SDSS	SDSS name (HHMMSS.ss+DDMMSS.s)
20- 38	F19.15	<a href="#">mag</a>	iMAG	SDSS i-band magnitude (z=2 k-corrected)
40- 61	A22	---	LOFAR	Unique LOFAR name (ILTJHHMMSS.ss+DDMMSS.s) <a href="#">(1)</a>
63- 84	E22.19	<a href="#">Jy</a>	F150	LOFAR 144 MHz flux density
86-106	E21.19	<a href="#">Jy</a>	e_F150	Error on LOFAR 144 MHz flux density
108-116	E9.6	<a href="#">Jy</a>	F100	?= Herschel 100micron flux density <a href="#">(2)</a>
118-125	F8.6	<a href="#">Jy</a>	e_F100	?= Error on Herschel 100micron flux density
127-135	E9.6	<a href="#">Jy</a>	F160	?= Herschel 160micron flux density <a href="#">(2)</a>
137-144	F8.6	<a href="#">Jy</a>	e_F160	?= Error on Herschel 160micron flux density
146-154	E9.6	<a href="#">Jy</a>	F250	?= Herschel 250micron flux density <a href="#">(2)</a>
156-163	F8.6	<a href="#">Jy</a>	e_F250	?= Error on Herschel 250micron flux density

165-173	E9.6	<a href="#">Jy</a>	F350	?=	Herschel 350micron flux density ( <a href="#">2</a> )
175-182	F8.6	<a href="#">Jy</a>	e_F350	?=	Error on Herschel 350micron flux density
184-192	E9.6	<a href="#">Jy</a>	F500	?=	Herschel 500micron flux density ( <a href="#">2</a> )
194-201	F8.6	<a href="#">Jy</a>	e_F500	?=	Error on Herschel 500micron flux density
203-232	E30.26	---	RL		Radio loudness parameter
234-239	F6.3	<a href="#">Msun</a>	BHmass	?=	Black hole mass ( <a href="#">3</a> )
241-262	E22.19	---	Eddratio	?=	Eddington ratio

**Note (1):** Only quasars that match LOFAR sources in the LoTSS catalogue (Shimwell et al., 2019, Cat. [J/A+A/622/A1](#)) have unique LOFAR names.

**Note (2):** Herschel measurements are only available over the HATLAS/NGP region.

**Note (3):** Black hole masses and Eddington ratio measurements provided by Shen et al. (2011, Cat. [J/ApJS/194/45](#)) and Kozłowski (2017, Cat. [J/ApJS/228/9](#)) were utilised.

#### Acknowledgements:

Gulay Gurkan <gulay.gurkan.g(at)gmail.com>

#### References:

Shimwell et al.,	Paper I	<a href="#">2019A&amp;A...622A...1S</a> , Cat. <a href="#">J/A+A/622/A1</a>
Williams et al.,	Paper II	<a href="#">2019A&amp;A...622A...2W</a>
Duncan et al.,	Paper III	<a href="#">2019A&amp;A...622A...3D</a>
Hale et al.,	Paper IV	<a href="#">2019A&amp;A...622A...4H</a> , Cat. <a href="#">J/A+A/622/A4</a>
de Gasperin et al.,	Paper V	<a href="#">2019A&amp;A...622A...5D</a>
Arias et al.,	Paper VI	<a href="#">2019A&amp;A...622A...6A</a>
Emig et al.,	Paper VII	<a href="#">2019A&amp;A...622A...7E</a>
Heesen et al.,	Paper VIII	<a href="#">2019A&amp;A...622A...8H</a> , Cat. <a href="#">J/A+A/622/A8</a>
Miskolczi et al.,	Paper IX	<a href="#">2019A&amp;A...622A...9M</a>
Croston et al.,	Paper X	<a href="#">2019A&amp;A...622A...10C</a>
Gurkan et al.,	Paper XI	<a href="#">2019A&amp;A...622A...11G</a> , Cat. <a href="#">J/A+A/622/A11</a>
Hardcastle et al.,	Paper XII	<a href="#">2019A&amp;A...622A...12H</a>
Mahatma et al.,	Paper XIII	<a href="#">2019A&amp;A...622A...13M</a> , Cat. <a href="#">J/A+A/622/A13</a>
Mooney et al.,	Paper XIV	<a href="#">2019A&amp;A...622A...14M</a>
Morabito et al.,	Paper XV	<a href="#">2019A&amp;A...622A...15M</a> , Cat. <a href="#">J/A+A/622/A15</a>
O'Sullivan et al.,	Paper XVI	<a href="#">2019A&amp;A...622A...16O</a>
Sabater et al.,	Paper XVII	<a href="#">2019A&amp;A...622A...17S</a>
Stacey et al.,	Paper XVIII	<a href="#">2019A&amp;A...622A...18S</a>
Botteon et al.,	Paper XIX	<a href="#">2019A&amp;A...622A...19B</a>
Hoang et al.,	Paper XX	<a href="#">2019A&amp;A...622A...20H</a>
Hoang et al.,	Paper XXI	<a href="#">2019A&amp;A...622A...21H</a>
Mandal et al.,	Paper XXII	<a href="#">2019A&amp;A...622A...22M</a> , Cat. <a href="#">J/A+A/622/A22</a>
Nikiel-Wroczyński et al.,	Paper XXIII	<a href="#">2019A&amp;A...622A...23N</a>
Savini et al.,	Paper XXIV	<a href="#">2019A&amp;A...622A...24S</a>
Wiber et al.,	Paper XXV	<a href="#">2019A&amp;A...622A...25W</a>

(End) Gulay Gurkan [CSIRO, Australia], Patricia Vannier [CDS] 16-Jan-2019

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