Table 1: Columns for dustpedia_cigale_results_final_version.csv and dustpedia_cigale_results_dl14_final_version.csv.

Column	Unit	Description
id	–	Galaxy name
SFR__Msol_per_yr	$M_\odot$/yr	Current star-formation rate
SFR_err	$M_\odot$/yr	Uncertainty on star-formation rate
Mstar__Msol	$M_\odot$	Stellar mass
Mstar_err	$M_\odot$	Uncertainty on stellar mass
Lbolo__Lsol	$L_\odot$	Bolometric luminosity
Lbolo_err	$L_\odot$	Uncertainty on bolometric luminosity
Lold_unatt__Lsol	$L_\odot$	Unattenuated luminosity of the old stars (> 200 Myr)
Lold_unatt_err	$L_\odot$	Uncertainty on the unattenuated luminosity of old stars
Lyoung_unatt__Lsol	$L_\odot$	Unattenuated luminosity of the young stars ($\leq$ 200 Myr)
Lyoung_unatt_err	$L_\odot$	Uncertainty on the unattenuated luminosity of young stars
Lold_abs__Lsol	$L_\odot$	Absorbed by dust, luminosity of the old stars
Lyoung_abs__Lsol	$L_\odot$	Absorbed by dust, luminosity of the young stars
Afuv	–	FUV attenuation
Afuv_err	–	Uncertainty on FUV attenuation
Av_b90	–	V-B90 colour attenuation
Av_b90_err	–	Uncertainty on V-B90 colour attenuation
Mdust__Msol	$M_\odot$	Dust mass
Mdust_err	$M_\odot$	Uncertainty on dust mass
Ldust__Lsol	$L_\odot$	Dust luminosity
Ldust_err	$L_\odot$	Uncertainty on dust luminosity
Umin	–	Minimum intensity value of the stellar radiation field
Umin_err	–	Uncertainty on Umin
Tdust__K	K	Dust temperature
Tdust_err	K	Uncertainty on dust temperature
qhac/qpah	–	Mass fractions of aromatic feature emitting grains (hydrocarbon solids/PAH)
qhac_err/qpah_err	–	Uncertainty on mass fractions qhac/qpah
gamma	–	Fraction of dust heated in photo-dissociation regions (PDR)
gamma_err	–	Uncertainty on gamma
red_chi2	–	Reduced χ^2

SED fitting products with CIGALE

We make use of the SED fitting code CIGALE (Noll et al. 2009; Roehlly et al. 2014; Boquien et al. 2018) to model and interpret the SEDs of 814 DustPedia galaxies (Davies et al. 2017; Clark et al. 2018). The code fits the multi-wavelength spectrum (UV-submm) of each galaxy in order to derive global properties such as the star-formation rate (SFR), the stellar mass ($M_{\rm star}$), the bolometric luminosity ($L_{\rm bolo}$) as well as the absorbed by dust luminosity, the minimum intensity value of the stellar radiation field ($U_{\rm min}$) and the dust mass ($M_{\rm dust}$). The stellar component is described by providing the relative contribution of both the young and the old stellar components to the total

SED of the galaxy. We fitted the dust emission using THEMIS dust model (Jones et al. 2013, 2017; Köhler et al. 2014). For comparison purposes, we performed an additional fitting run with CIGALE using the widely adopted model Draine et al. (2007) (updated in Draine et al. 2014, DL14). The parameter grid is the same as in the case of THEMIS (See Section 3.1.2 in Nersesian et al. 2019), with only the polycyclic aromatic hydrocarbon (PAH) abundance ($q_{\rm PAH}$) substituting the mass fraction of small hydrocarbon solids (a-C(:H); $q_{\rm hac}$). The small a-C(:H) component has the same effect as the PAH component in the DL14 model; the only difference should be a scaling factor between the two quantities: $q_{\rm PAH} \sim q_{\rm hac}/2.2$. Finally, we can approximate the dust temperature using the strength of the interstellar radiation field parametrized by $U_{\rm min}$.

$$T_{\rm dust} = T_{\rm o}\, U_{\rm min}^{(1/(4+\beta))}, \tag{1}$$

(Aniano et al. 2012). Here, $U_{\rm min}$ is the minimum ISRF intensity heating the diffuse dust, $T_{\rm o} = 18.3$ K is the dust temperature measured in the solar neighbourhood, and β is the dust emissivity index, which, for the THEMIS dust model, gets the value of 1.79, and for DL14 gets the value of 2. The global galaxy properties derived with CIGALE using the THEMIS dust model are given in the "dustpedia_cigale_results_final_version.csv" file, whereas the properties obtained by using the DL14 model are given in the "dustpedia_cigale_results_dl14_final_version.csv" file.

References

Aniano, G., Draine, B. T., Calzetti, D., et al. 2012, , 756, 138

Boquien, M., Burgarella, D., Roehlly, Y., et al. 2018, ArXiv e-prints [[arXiv]1811.03094]

Clark, C. J. R., Verstocken, S., Bianchi, S., et al. 2018, , 609, A37

Davies, J. I., Baes, M., Bianchi, S., et al. 2017, , 129, 044102

Draine, B. T., Aniano, G., Krause, O., et al. 2014, , 780, 172

Draine, B. T., Dale, D. A., Bendo, G., et al. 2007, , 663, 866

Jones, A. P., Fanciullo, L., Köhler, M., et al. 2013, , 558, A62

Jones, A. P., Köhler, M., Ysard, N., Bocchio, M., & Verstraete, L. 2017, , 602, A46

Köhler, M., Jones, A., & Ysard, N. 2014, , 565, L9

Noll, S., Burgarella, D., Giovannoli, E., et al. 2009, , 507, 1793

Roehlly, Y., Burgarella, D., Buat, V., et al. 2014, in Astronomical Society of the Pacific Conference Series, Vol. 485, Astronomical Data Analysis Software and Systems XXIII, ed. N. Manset & P. Forshay, 347