



DustPedia - A Definitive Study of Cosmic Dust in the Local Universe

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A legacy database of 850 galaxies observed by Herschel
 $D_{25} > 1'$, $v < 3000$ km/s, multiwavelength coverage from UV to submm

DustPedia

"[...] nearby galaxies offer rich and still far from completely explored clues to a better picture of how galaxies form." (Peebles & Nusser 2010)



Radial distribution of dust, stars, gas and SFR in DustPedia face-on galaxies

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E. Xilouris, L. Magrini & DustPedia Team**

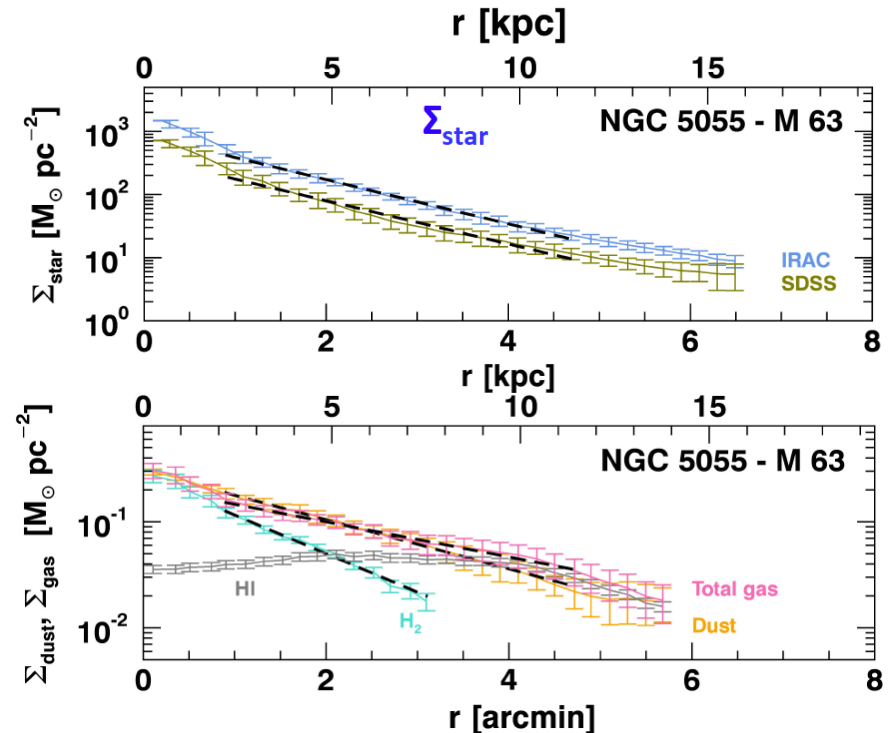
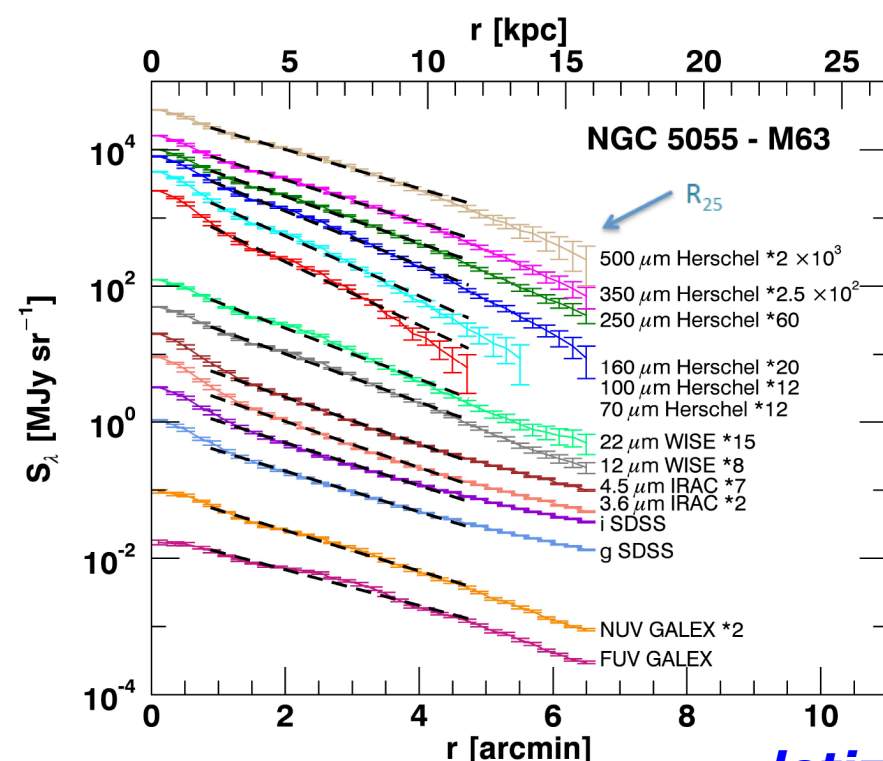
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SAMPLE SELECTION:

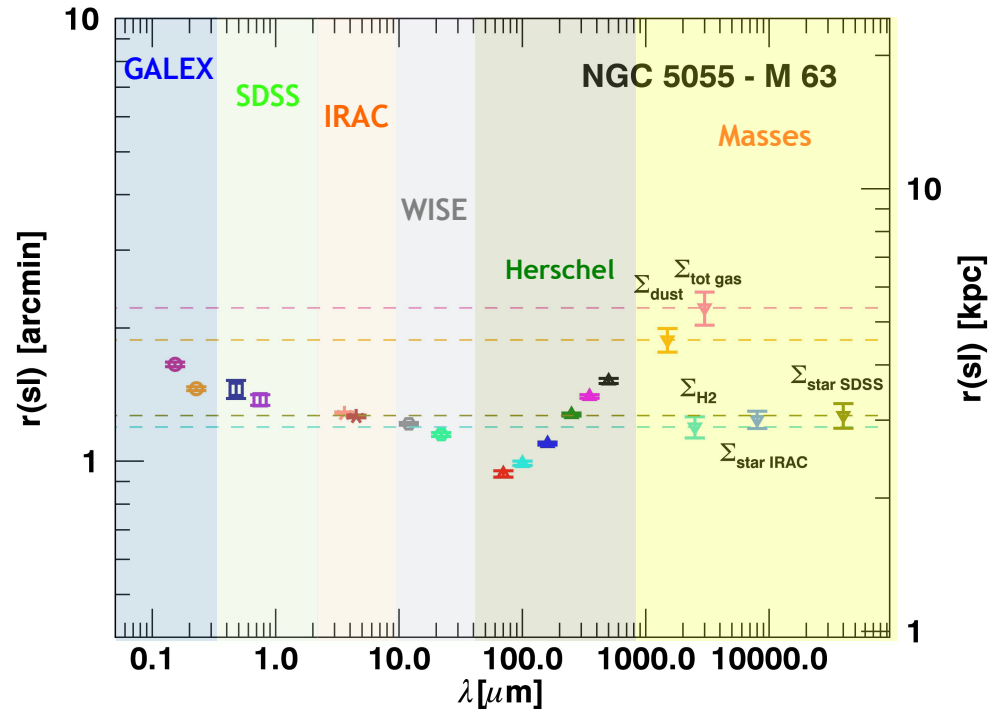
- ★ The largest face-on spiral galaxies detected both by **PACS** and **SPIRE** (18 galaxies)
- ★ Spirals: $1 \leq T \leq 8$ (Tully 1988)
- ★ $D_{\text{submm}} \geq 9'$ and axis ratio $(d/D)_{\text{submm}} \geq 0.4$ @ the 12 mJy/beam isophote in 250 μm images

NGC 5055 - M63: Surface brightness & mass surface density profiles





NGC 5055 - M63: Scalelengths



- ★ Decreasing trend from the UV to MIR and increasing towards sub-mm
- ★ Scalelength (Σ_{dust}) > Scalelength(500 μm): 500 μm $\rightarrow$ Dust
- ★ Scalelength (Σ_{dust}) & Scalelength ($\Sigma_{\text{tot gas}}$) > Scalelength (SBs)
- ★ Scalelength (Σ_{dust}) & Scalelength ($\Sigma_{\text{tot gas}}$) > Scalelength (Σ_{stars}) (factor of ~ 2)