Dust enshrouded star-forming activity in Arp 299

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We present mid-infrared spectro-imaging (5 − 16 µm) observations of the infrared luminous interacting system Arp 299 (= Mrk 171 = IC 694 + NGC 3690) obtained with the ISOCAM instrument aboard ISO. Our observations show this diffuse, originating from the interacting disks of the galaxies. Moreover, they indicate the presence of large amounts of hot dust in the main infrared sources of the system and large extinctions toward the nuclei. While the observed spectra have an overall similar shape, mainly composed of Unidentified Infrared Bands (UIB) in the short wavelength domain, a strong continuum at ≈ 13 µm and a deep silicate absorption band at 10 µm, their differences reveal the varying physical conditions of each component. For each source, the spectral energy distribution (SED) can be reproduced by a linear combination of a UIB “canonical” spectral template and a hot dust continuum due to a 230 − 300 K blackbody, after independently applying an extinction correction to both of them. This suggests that most UIBs originate from less enshrouded regions. IC 694 appears to dominate the infrared emission of this system, having a strong continuum from 5 to 16 µm which can be explained as thermal emission from a deeply embedded (A_V ~ 60 mag) compact source, consistent with the mid-infrared signature of a Fanaroff-Riley type 2 (FR 2) radio galaxy. A strong ultraviolet (UV) young, ass shown by the prominent 180 kpc (13′) long tidal tail.

figure*![ht] pgallais926f1.eps

The HST/NICMOS 2.2 µm image of Arp 299 from Alonso00 with the overlay of the ISOCAM 7 µm emission. The different components of the system are indicated. The 9 contour levels are set with logarithmic spacing between 1 and 33 mJy arcsec^{-2}.