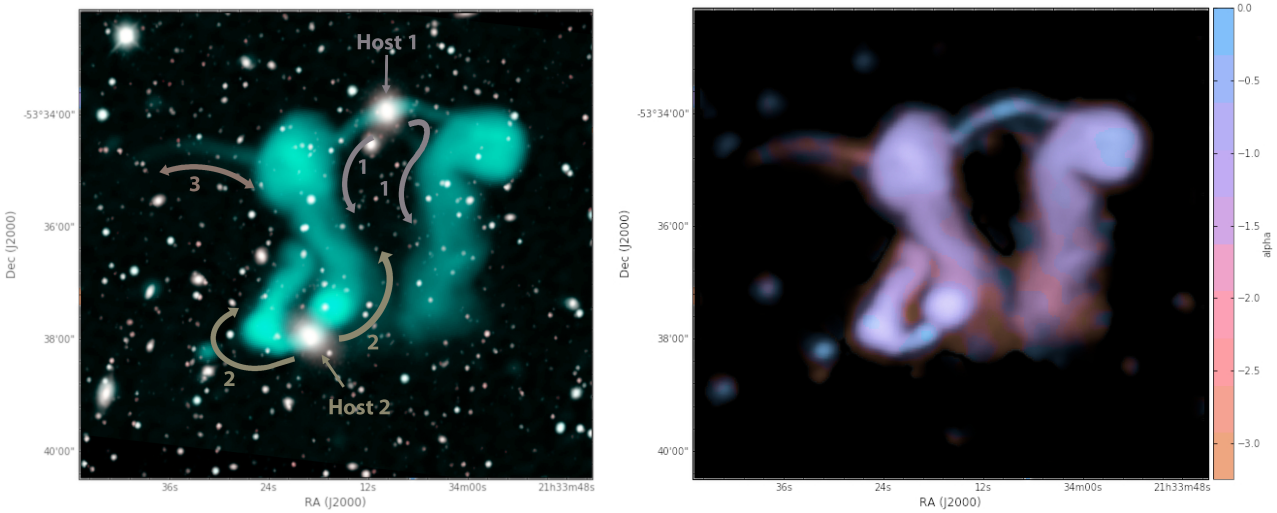

Figure 21. A peculiar radio source found in the EMU Pilot Survey, consisting of a group of distorted radio components, collectively known as PKS 2130–538, and nicknamed "the dancing ghosts". The two host galaxies ($z \sim 0.077$) are seen at the centre of the narrow jets (shown with numbers in the Figure to indicate their putative host) which expand into diffuse lobes, probably bent by interactions. On the left is the total intensity greyscale image (shown in turquoise), superimposed on a background of the DES optical image, assembled from the r, g, and i images. On the right is the total intensity image of PKS 2130-538, colour-coded by spectral index. The unconventional colour scheme was constructed using sequential colours on the "colour-wheel" (e.g. Itten, 1970). The colours were fixed in luminosity, i.e., fixed to be constant in luminosity-chroma-hue color space (Ferrand, 2019). In this way, the brightness level on the image represents only the total intensity values. The colour bar indicates the spectral index at a single fixed intensity. Since the spectral index map in this color scheme was multiplied by the total intensity map, darker versions of colours are associated with fainter regions in the data. The peak flux density in this image is 103 mJy/beam.

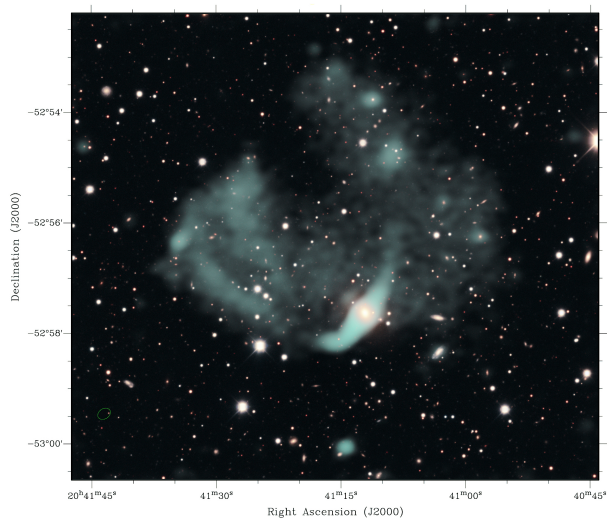

Figure 22. Another peculiar radio source found in the EMU Pilot Survey: a double lobed radio AGN, known as PMN J2041–5256, with a curious "double" bent tail. The radio data from EMU-PS has been "stretched" to show the faint emission, and then coloured turquoise, and adjusted to emphasise the double tail. DES g-, r-, and i-band data are combined to form the background, which is combined with the radio data using a layer mask in GIMP. Embedded in the tails are several radio sources that may be unrelated to the tailed galaxy. The peak flux density in this image is 58.3 mJy/beam.

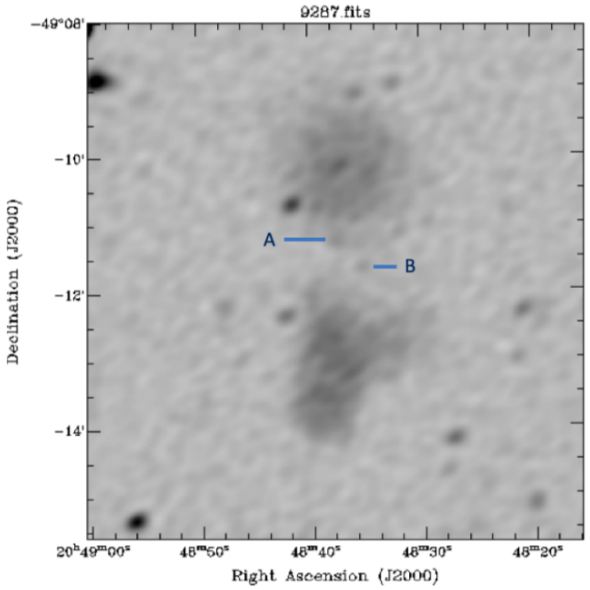

Figure 23. The "Smoking Gun" Galaxy EMU PS J204835.0–491137 consists of the two diffuse radio clouds seen in this image. These are presumably the remnants of a classical double-lobed radio galaxy in which the central engine has switched off. The labels A and B indicate two possible host galaxies, discussed in the text. The peak flux density in this image is 0.87 mJy/beam.