



Figure 5. Left: Non-thermal spectral index map constructed from the thermal-corrected LOFAR and CHANG-ES maps. Locations of prominent H α filaments are displayed with white dotted lines, as in Fig. 2. The ordered magnetic field as determined by Krause et al. (2020) is shown with orange vectors. The channel of shallow spectral index associated with the filament in the SW quadrant, discussed in the text (Section 3.2), is indicated with an arrow. Right: Spectral index error estimated as described in the text. In both panels, the black contours show the distribution of 140 MHz radio continuum emission (starting at 1 mJy beam^{-1} and increasing by powers of two), the centre of the galaxy is marked with a red plus, and the beam size is shown with a black circle at the bottom left corner.