Supporting information figures for Coupling of molecular vibration and metasurface modes for efficient mid-infrared emission

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Supporting information
Figure S1. Transmission (red-line) and thermal radiation (shaded-profile) of a 3 \( \mu \)m thick polyimide film.

Figure S2. a The model of single Lorenz mode. b The resonance behaviour of plasmon mode and single Lorenz peak. c,d Qualitative model of symmetric/asymmetric coupling mode.

Figure S3. The reflection spectra at four orientations of the linear polarisation (0, \( \pi /4 \), \( 3\pi /4 \)) and chemical mapping at selected peaks (I-V). The color map represents the amplitude \( Amp \) and the black lines are the orientation angle \( \theta_{\text{orient}} \) of the best fit = \( Amp \times \cos^2(\theta - \theta_{\text{orient}}) \). Polyimide prepared by vapor deposition polymerization was the insulator layer of MIM structure; thickness was 60 nm determined by ellipsometry. A square has pattern of triangular lattice of nanodisks of diameter \( D \) and period \( \Lambda = 1.5D \) with \( D \) values shown in the sample schematics (right-bottom corner). The orientation at the angle \( \theta_0 = 0^\circ \) is aligned with x-axis (horizontal). The length of the orientation line is proportional to the amplitude of the fit \( Amp \).