



**Figure 9.** Intensity of all significant resonances for small  $D$ -value and X-band EPR. The upper figure shows the square of the transition dipole for each of the pairs of energy levels that contribute significantly to the low-field region of an X-band spectrum with small value of  $D$ . The lower figure shows the corresponding absorption spectra. The color code for transitions between pairs of energy levels is 1→2 (red), 1→3 (orange), 1→4 (pink), 2→3 (yellow), 2→4 (bright blue), 3→4 (turquoise), 3→5 (white), 4→5 (light green), and 5→6 (dark green). The input parameters for the IronHS program [1] were  $D = 0.1 \text{ cm}^{-1}$ ,  $E/D = 0.06$ , frequency = 9.4 GHz, linewidth = 140 MHz, field segments = 1 mT, steps in  $\theta$  of  $1^\circ$ , and steps in  $\phi$  of  $2^\circ$ . Regions of looping transitions were calculated using a cubic polynomial [21].