



**Figure S1: Demonstration of the degree distribution in the experimental spectroscopic network of the  $\text{H}_2^{18}\text{O}$  isotopologue.** Panel (a) exhibits a discrete, heavy-tailed degree distribution. This distribution pertains to a subnetwork of the spectroscopic network reported in 20FuToTePo, whereby only the purely experimental transitions are included, contracting every multiple edge into a single one. The highest-degree hub is shown in the light red box of panel (a). The degrees follow an inverse power-law-like model down to  $d \geq d_{\min}$ , whose parameters (with their last-digit uncertainties in parentheses) are also indicated in panel (a). Panel (b) depicts the  $J$  dependence of the degrees for the  $P = 0$  polyad up to  $J = 8$ . In panel (b), the states are displayed, instead of points, *via* their (one-digit)  $K_a$  values, for which the full assignments can be read from the right-hand-side color legend.