



Figure S9: Representative N_{bleach} histograms for tumbling molecules (**A**), fixed-molecules under circularly polarized laser (**B**), and fixed molecules under linearly polarized laser (**C**). Data were generated with parameters of Table S1. The increase concavity of the histograms in going from tumbling molecules to fixed molecules under a linearly polarized laser is apparent. Fitting histograms from fixed molecules using the tumbling model (grey dashed lines) produces lower quality results.