of the susceptibility calculated using a coupling intensity of 1 MW/cm^2 for two dot sizes (height 7.5 nm and 9 nm, both $A_{sp} = 2$) using either the most simple model (one-band unstrained) or the most complex (eight-band strained). Most notably the EIT effect, which

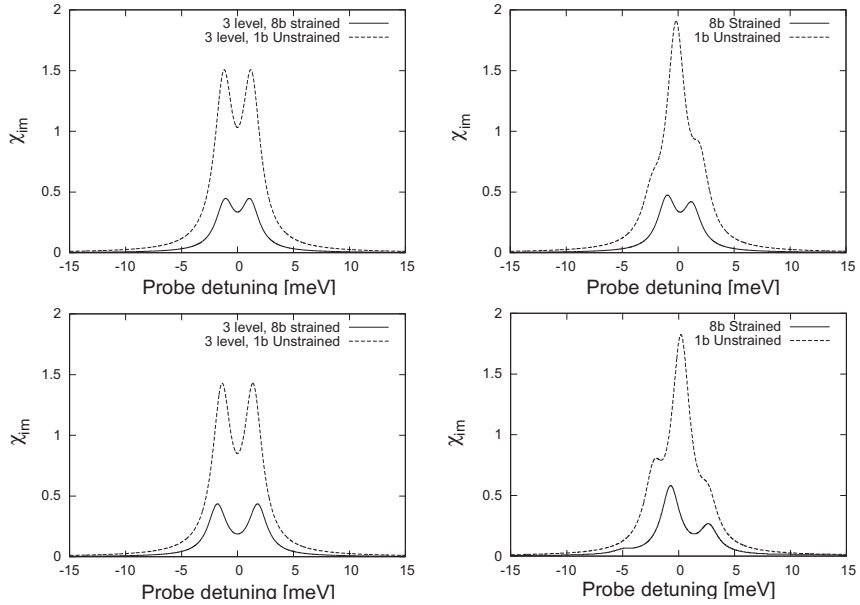

FIG. 10: Example of susceptibility calculated for a ladder scheme using the 3 level - or a full multi level approach based on either the eight band strained or one band unstrained model. The results are presented for dots of height 7.5 nm (top panel) and 9 nm (bottom panel), both $A_{sp} = 2$. The reason for the larger features in the one band calculations is that the strength of the probe transition is larger within this model (see Fig. 6).

is recognized as a dip in the absorption spectrum symmetric around the probe frequency and is present in the simple three level models, is absent from three out of four multi-level calculations. The reason for this is that the additional level structure is dipole coupled to the three level EIT system. In the particular ladder configuration considered here, due to the relatively close spacing between the energy levels, higher lying states are also being addressed by the coupling field thereby adding alternative decay pathways that effectively destroy the destructive interference between the available paths, which is at the origin of EIT. In the one band unstrained calculation the energy levels are almost equidistantly spaced resulting in a peak in stead of a dip in the spectrum. The level structure is modified by strain and the inclusion of additional bandstructure, in fact the multi-level model for the dot of 7.5 nm height indeed displays the EIT effect. In this particular case the higher lying shells are not