**Chiang *et al.* Reply:** In the preceding Comment [1], we would like to point out first that Kono *et al.* clearly agree with us about the existence of the conduction-valence Landau level mixing (CV LLM) effect [2], since they also attributed the observation of additional weak lines that extrapolated to zero frequency at finite $B$ (please refer to Fig. 1 of the Comment [1]) to the finite-$k$ coupling effect (i.e., the CV LLM effect). These additional weak lines are caused by the weakly holelike to electronlike transitions. In Figure 4 of our Letter, [2] we did not explicitly show the transition energies for weakly holelike to electronlike, since we did not calculate the intensity for those allowed transitions. However, in our Letter we did mention that "at some magnetic fields we may also observe the holelike to electronlike transitions [e.g., near the end point on the right-hand side of the dotted line in Fig. 4(b)]." Thus, as a result of Type-II band nonparabolicity [2], clear discontinuities in the $e$-CR line should be experimentally observable. In fact, band nonparabolicity (Type-I or Type-II) can yield not only discontinuities but also kinks in transition energy curves. This means that not only discontinuities but also kinks in the $e$-CR line (or in the $e$-$X$ line) are expected to be observed experimentally in the broken-gap quantum wells. Moreover, the positions for these discontinuities (or kinks) are parameter dependent (e.g., thickness of $Al_xGa_{1-x}Sb$, Al composition $x$, etc.).

Recently, as shown in Fig. 1, we have also calculated some allowed electronlike to electronlike and holelike to electronlike transition energies at low magnetic fields for a symmetric AlSb-$Al_{0.08}Ga_{0.92}Sb$-InAs-$Al_{0.08}Ga_{0.92}Sb$-AlSb quantum well (QW) (see Ref. [3]). Please note that this QW is slightly different from the QW in Fig. 4 of Ref. [2]. The weakly holelike to electronlike transition energies, which can also be observed experimentally, are not explicitly shown in this long paper, either. Our results indicate that the energy separations at low magnetic fields ($B \approx 2-4$ T) are, in general, slightly larger than those at $B \approx 5-9$ T, due to the fact that the CV LLM at low magnetic fields ($<4$ T) is stronger than that at $B \approx 5-9$ T. In addition, our theoretical data for $e$-$X$ extrapolate to a finite energy intercept at $B = 0$, because the $e$-$X$ lines are caused by the $M^- \rightarrow M^+$ transitions (please also refer to Fig. 2 in Ref. [2]). For the temperature effect, it is really complicated since the band structures (e.g., energy gap) of InAs and GaSb vary significantly with the temperatures; furthermore, the temperature has also significant influence on the charge transfer effect (band-bending effect), which can change the potential profile significantly.

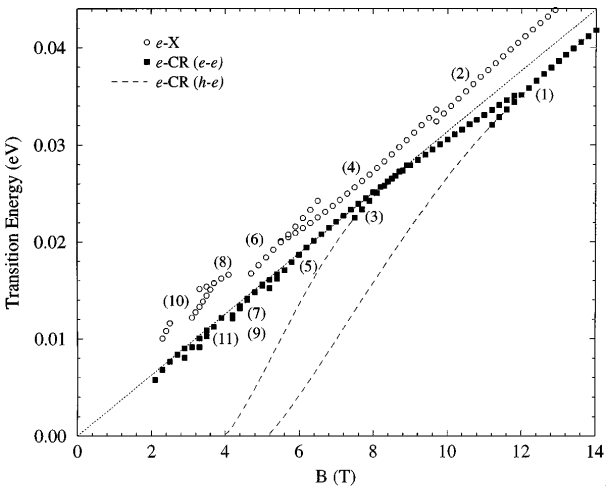


FIG. 1. Some allowed electronlike to electronlike (open circles and solid squares) and holelike to electronlike (dashed lines) transition energies as a function of magnetic field, for a symmetric AlSb-$Al_{0.08}Ga_{0.92}Sb$-InAs-$Al_{0.08}Ga_{0.92}Sb$-AlSb QW with a 158-Å-thick InAs layer and 61-Å-thick $Al_{0.08}Ga_{0.92}Sb$ layers.

The effect of "internal transition of stable excitons" [1] is another possibility to yield the double-line structure observed in Ref. [4] of the Comment, although Xia *et al.* [4] reported that the binding energy for excitons increases with increasing $B$ in low magnetic field range. Note that the above magnetic range is parameter (e.g., carrier concentration) dependent. More theoretical and experimental works are needed to be done in the future to understand more about the effects of the "internal transition of stable excitons" and the "conduction-valence Landau level mixing," since theoretically both effects can yield a double-line structure in the CR spectrum.

Jih-Chen Chiang, Shiow-Fon Tsay, Z. M. Chau, and Ikai Lo
Department of Physics
National Sun Yat-sen University
Kaohsiung, Taiwan, Republic of China

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