Lin *et al.* Reply Before the turn-on of the light-emitting diode (LED) we agree that the electroluminescence-induced absorption (EA) is exclusively due to polarons injected in space-charge-limited current (SCLC), as evidenced by the linear dependence of the EA on the bias. After turn-on, it is also likely that polarons contribute significantly to the EA as suggested by the Comments [1,2]. In our view the contribution of triplet excitons to room temperature EA at higher bias cannot be ruled out based on the published data. There is indeed no triplet signal peaked at 1.3 eV in the LED room temperature EA spectrum in Ref. [3]. However the data are taken at 3 V, where there is only relatively weak electroluminescence. It is quite possible that as the bias increases a large amount of triplet excitons are produced by recombination and they start to play a major role in the EA spectrum despite their short lifetime at room temperature. Since no EA spectrum is shown for bias between 3 and 15 V in Ref. [3], we feel it is somewhat premature to assume that polarons will always be the dominant species in EA in the entire near infrared region no matter how large the bias.

Let us tentatively assume that EA is due to a collective behavior of polarons and triplet excitons. The experimental fact is that as bias increases EA at 1.46 eV (and other energy nearby) increases linearly initially then saturates as bias is well above turn-on. In fact it even slightly decreases. This is the reason for the apparent strong suppression of γ by the electric field. There are four possibilities for the EA suppression: (1) triplet exciton is suppressed, (2) polaron is suppressed, (3) both are suppressed, (4) negative EA (optical gain) emerges. Potential mechanism for (1) is already discussed in our work. As for (2), the linear dependence of polarons on bias holds strictly only for single carrier SCLC, and the polaron densities may become sublinear after turn-on as the current changes from a single carrier to a double carrier. But there is no reason that polaron number would decrease as larger current is injected. Polaron dissociation is a candidate origin for (2). Theoretically, both triplet excitons and polarons cause only induced absorption and no stimulated emission. So (4) is not expected. All the possibilities are new in polymer LED. In our view more works are needed in order to decide which one is correct. It is certain that our conclusion on the suppressed γ does not survive if possibility (2) turns out to be the correct one.

The relative change in our photoinduced absorption (PA) is on the order of 10^{-7}–10^{-6}, depending on how tight the pump laser is focused. For tighter focus the pump intensity in our case might be higher than the intensity in Ref. [4] and the PA is larger accordingly. PA can be detected in Ref. [4] up to 270 K; it is therefore quite possible that PA can be detected at 300 K if the signal is increased by a few times. The focus is expanded for uniformity in our work and the PA is around 10^{-7}, which is already below the common noise level with lamp probe. Laser probe is used to resolve such a small signal in our work. PA proportional to pump intensity is detectable not only in LED but also in pristine films. Triplet exciton is believed to be the source of PA [3,4].

We agree with Österbacka [1] that triplet-polaron interaction might lead to a smaller triplet exciton lifetime in EA than in PA. This effect is not taken into account explicitly in our work, and might be a concrete example of the triplet quenching mechanisms speculated in our work to explain the γ suppression. The Comments [1,2] point out some potential oversimplification in our interpretation of the EA and are very appreciated.

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