Tejada *et al.* Reply: We welcome the Comment of Lin He. Our Letter [1] reported quantized mechanical rotation of $CoFe_2O_4$ nanoparticles detected by microwave absorption. The evidence of free particles inside polymeric cavities was obtained from nonhysteretic magnetic behavior of a significant fraction of the particles. The evidence of the quantization of their rotational motion was obtained from equidistant steps in the dependence of the microwave absorption on the magnetic field.

Lin He is proposing an alternative explanation to the data [2]. He is suggesting that the steep decrease of the magnetization near zero field observed in the zero field cooled (ZFC) curve (Fig. 4 of our Letter) is due to the reorientation of magnetic moments of nanoparticles frozen in the polymer matrix, caused by the magnetic dipole-dipole interaction between the particles. This explanation is ruled out by the observed alignment of the magnetic moments of the nanoparticles with the direction of the field when the field is below 1 G. In our studies of magnetization curves of various systems of magnetic nanoparticles we have never observed such a nonhysteretic behavior at low temperatures [3]. It is similar to the behavior of the arrow of a compass, which indicates the presence of free magnetic particles. It should also be mentioned that the orientation of magnetic moments of frozen $CoFe_2O_4$ nanoparticles would be dominated by their magnetocrystalline and shape anisotropy, and not by the dipolar fields.

Lin He further proposes that the stepwise field dependence of the low-field microwave absorption could be due to the microwave-assisted switching of magnetic moments of the nanoparticles in the spirit of Ref. [4]. He states that ''The stepwise field dependence of the absorption signal is a reflection of the distribution of switching fields.'' This statement cannot be reconciled with the equidistant character of the steps reported in our Letter. Lin He also suggests that ''the stepwise structure of the ESR absorption signal should disappear above the blocking temperature.'' This suggestion further contradicts our data (see Fig. 6 of our Letter) that show very little, if any, temperature dependence of the observed steps on approaching the blocking temperature. The data cannot be reconciled with the mechanism that is based upon exponential dependence of thermal activation on temperature. The Letter states explicitly that between 2 and 300 K the steps are independent of temperature and independent of the power of the microwave field. Independence of power rules out the microwave-assisted switching mechanism proposed by Lin He. Neither can this mechanism explain the equidistant character of the steps in the dependence of the absorption on the magnetic field.

In Conclusion, our data do not support the alternative explanation proposed by Lin He.

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