Huant, Robert, and Chouteau Reply: FitzGerald and Sievers [1] point out the sensitivity of the far-infrared (FIR) spectrum of solid C_{60} to air exposure. We agree with their finding that the two salient peaks at 26.6 and 58.5 cm^{-1} seen in the spectrum of samples exposed to air (see Fig. 1 of FitzGerald and Sievers [1] or Fig. 3 of our Letter [2]) should not be assigned to the two T_u modes of pure C_{60}.

We have repeated our measurements with a pellet sample which was previously dried to remove traces of solvents and subsequently exposed to air. The sample was mounted in our insert with optical access where it was left pumping overnight at a pressure around 10^{-6} torr and a temperature of 120 °C. The sample was then cooled down to 4.2 K in the presence of a low pressure (3 mbar at room temperature) of He exchange gas. In agreement with FitzGerald and Sievers, the transmission spectrum consists of only two peaks at approximately 41 and 55 cm^{-1} (Fig. 1 of FitzGerald and Sievers [1]) which should therefore be assigned to the two infrared-active phonon modes of pure solid C_{60}. Furthermore, these energies seem to agree well with recent calculations of Bonadeo, Halac, and Burgos [3].

The puzzling point is just how fast the contamination of C_{60} is. This is demonstrated in Fig. 1 where we show transmission spectra of solid C_{60} at 4.2 K after various exposure times to air at ambient temperature, normalized to the spectrum of pure solid C_{60}. Already at exposure times of a few minutes the "impurity" mode at 58 cm^{-1} is visible and is quite intense after 15 min as compared to that of the material which has been exposed to air for 16 h.

FitzGerald and Sievers give arguments that water vapor is responsible for the changes in the FIR spectrum of C_{60} exposed to air. To have a quantitative idea of this water contamination, an oxidative pyroanalysis [4] of our sample has been performed which revealed the presence of water molecules in the range of 4 molecules per 100 C_{60} molecules (0.1% mass percentage). This has a dramatic effect on the FIR spectrum, possibly through the activation of silent modes [3] (e.g., the strong "impurity" mode at 26.6 cm^{-1} is very close to the librational mode reported in Ref. [5]). Luminescence experiments have shown that C_{60} exposed to air is contaminated by O_2 under ambient conditions [6]. Very recently, it has been suggested that there exists some analogy between fullerenes and active charcoal [7]. All of this confirms that great care must be taken to avoid exposure to air in experimental studies of fullerenes where intrinsic properties should prevail.

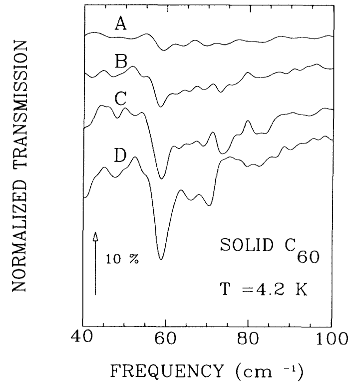

FIG. 1. Transmission spectra of solid C_{60} after different exposure times to air at ambient temperature, normalized to the spectrum of pure solid C_{60}. The total exposure times to air are *A*, 1 min; *B*, 5 min; *C*, 15 min; *D*, 16 h. The spectra have been displaced vertically for the sake of clarity.

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