

Zanette and Alemany Reply *First*, indeed, working with a Lévy distribution (LD), $p(\mathbf{k}) = \exp(-ak^\gamma)$, can be tricky because of the bizarre properties of its partner in real space (see Ref. [5] of the Comment [1]). We point out, however, that—with respect to the operations objected in the Comment—we do not use the LD itself, which is irrelevant in the frame of Tsallis statistics, but the completely regular function quoted in Eq. (1) of our Letter. As indicated just before that equation, this form of $p(\mathbf{x})$ preserves the statistical properties of LDs in the large- x limit and, therefore, provides a proper description of anomalous diffusion. We apply LDs later, but only in Fourier space and as a convenient representation of the small- k expansion of the Fourier transform of $p(\mathbf{x})$. The scaling arguments used there are straightforward.

It is worth mentioning here that, in spite of the complex mathematical properties of LDs, the theory of random walks has been fully extended to take into account such type of distributions. This results have been extensively used in the literature (see, for instance, Refs. [1–4] of our Letter). The theory has even been generalized to the case when not only the jump probability but also the waiting time distribution is of the Lévy type [see H.C. Fogedby, *Phys. Rev. E* **50**, 1657 (1994)].

Second, the formal parallelism between Tsallis and ordinary statistics has been systematically used as an argument supporting the results obtained in the frame of that generalized theory. However, being a mathematical fact only, such an analogy cannot be used as a definitive argument to decide in each case which is the procedure relevant to applications to real systems. Only the experimental verification of Tsallis statistics—which would support not only its basic hypotheses but also the procedures used to operate in its context—would provide a physically valid element of decision.

This applies, in particular, to the generalized theorem of variable transformations which, according to the Comment, has been explicitly pointed out in its Ref. [4], i.e.,

after the publication of our Letter. The lack of experimental results validating a given procedure makes the use of any particular technique a matter of controversy. We stress that this difference of procedure is the main source of discrepancy between our and Tsallis' results (Ref. [3] of the Comment). At this moment, the only test available for results of Tsallis statistics is their reduction, in the limit $q \rightarrow 1$, to those of the usual theory, whose background and methods have been validated by experience beyond any doubt. The results of both our Letter and Ref. [3] of the Comment pass this test successfully. On the other hand, it is true that the Lévy-Gedenko central limit theorem should have to be taken into account in our analysis.

Finally, for the convenience of the reader, we would like to stress here that these rather technical aspects can jeopardize the main physically meaningful conclusion of our Letter, namely, the existence of a strong connection between anomalous diffusion—a transport mechanism that is found in a wide class of real systems—and Tsallis statistics. This result, which had been suggested by our previous work in Ref. [5] of our Letter, has motivated further research by other authors (see, for instance, Ref. [3] of the Comment and the Comment itself) in a field that is presently attracting increasing attention.

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- [1] M.O. Cáceres and C.E. Budde, preceding Comment, *Phys. Rev. Lett.* **77**, 2589 (1996).