Albergamo *et al.* Reply: The zero sound mode in normal liquid ^{3}He has recently been measured in the mesoscopic wave vector range where it was expected to decay into particle-hole excitations [1]. The obtained results have been interpreted as showing no evidence of such a decay, but rather a behavior similar to that usually found in simple liquids. This conclusion is now challenged in the preceding Comment [2].

There are two main points discussed in Ref. [2]. The first one is more technical, and is based on the idea that the results published in Ref. [1] should be rather presented in a different way for a clearer understanding of the problem. The second point raises the concern that the newly proposed data presentation would not justify the conclusions reported in Ref. [1].

In the first point Schemts and Montfrooij discuss the following problem: should a Brillouin peak represented by a damped harmonic oscillator function be rather described using the parameter Ω (maximum of the classical longitudinal current associated to the measured dynamic structure factor) or, conversely, using the pole of the susceptibility function $\omega_{\rm max}$ (this corresponds to $\omega_{\rm ZSM}$ in Ref. [2] for the case of ^{3}He)? This is a standard textbook question whose answer depends on what one is looking for. In the present case, however, this question is irrelevant, since Albergamo *et al.* discuss the Brillouin peak in terms of *both* Ω and 2Γ (the full width at half maximum of the Brillouin peak); being these two parameters directly related to $\omega_{\rm max}$—as Schemts and Montfrooij do recall in their Comment—there is no added value in reporting $\omega_{\rm max}$: the "considerable softening" of $\omega_{\rm max}$ underlined by Schmets and Montfrooij bears the same information of noticing that the parameters Ω and Γ are comparable. In other words, and using the simple example discussed in Ref. [2], the point is *not* whether, in order to scrutinize the decay mechanism of a mass m hanging from a spring with constant k, the information on the propagation frequency f is superior to that provided by $\sqrt{k/m}$, but rather the point is whether the information on f is superior to that provided by $\sqrt{k/m}$ *and* by the friction coefficient. The second information leads of course to the first one as well.

This brings us to the second point of the Comment and as well to one of the main conclusions of Ref. [1]. Is the softening of $\omega_{\rm max}$ around the first sharp diffraction peak of ^{3}He really considerable? Or—using the parametrization chosen in [1]—is the corresponding value of 2Γ exceptionally high? The answer to these questions is negative: this behavior is often observed in simple liquids. A number of good examples of that can be found in Ref. [3] and references therein. We simply report in Fig. 1 one example: normal liquid ^{4}He at 4.2 K and saturated vapor pressure (SVP) conditions, corresponding to a density of 18.8 atoms/nm^3, i.e., to a density close to that of normal liquid ^{3}He as studied in Ref. [1]. The corresponding $\omega_{\rm max}$ data from Ref. [3] have been obtained analyzing original data from Ref. [4]. Figure 1 clearly shows that the $\omega_{\rm max}$ data for normal liquid ^{4}He present the evidence of softening as those for ^{3}He. The two data sets are actually very similar, to the point that it is difficult to distinguish one from the other. This clearly implies that there is no exceptional feature in the mesoscopic acoustic modes of ^{3}He that would suggest the existence of a damping mechanism specific to Fermi liquids, at least not more than for the case of normal liquid ^{4}He.

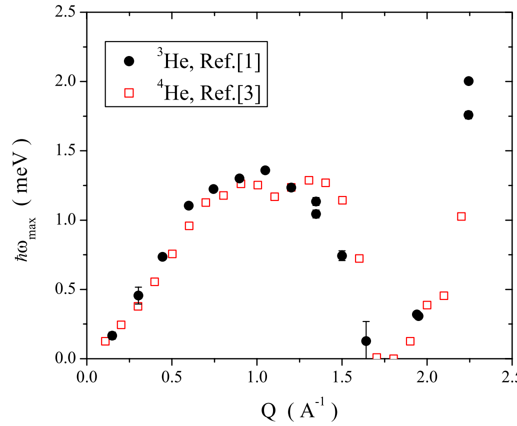

FIG. 1 (color online). Acoustic dispersion curves for normal liquid ^{3}He at 1.1 K and SVP [1] and for normal liquid ^{4}He at 4.2 K and SVP [3,4]. Both sets of data correspond to the pole of the susceptibility function $\omega_{\rm max}$.

In conclusion, the representation of the results of Ref. [1] in terms of $\omega_{\rm max}$ as proposed in Ref. [2] is of course perfectly legitimate, but does not add really new information with respect to the inspection of Fig. 3 of Ref. [1]. Moreover, and basically for the same reason, the conclusion that there is no evidence of strong damping of the collective zero sound mode when it interacts with the particle-hole continuum does stand scrutiny.

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