A GENERAL FATOU LEMMA FOR THE GELFAND INTEGRAL

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Topics #4 and #5: *Nonstandard Methods in Functional Analysis. Nonstandard methods in measure theory, stochastic analysis, probability and statistics.*

[Joint work with Yeneng Sun.[1]]

A general Fatou Lemma is established for a sequence of Gelfand integrable functions from a vector Loeb space to the dual of a separable Banach space, or for a stronger conclusion, Banach lattice. A corollary sharpens previous results in the finite dimensional setting even for the case of scalar measures. Examples show that a vector measure space formed from Lebesgue spaces will not suffice as the underlying space for the result.

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