



Bounds For Multilinear Sublevel Sets Via Szemerédi's Theorem

[Michael Christ](#)

(Submitted on 12 Jul 2011)

In 2005, Li, Tao, Thiele and the author raised a general question concerning upper bounds for a class of multilinear oscillatory integral operators, and established such bounds in a few cases. Most cases remain open. The present paper is concerned with sublevel set bounds, which would be a consequence of the oscillatory integral bounds, if valid. These sublevel set bounds are established here in a weak form but in nearly full generality, subject only to a rationality hypothesis. The proof relies on an extension of Szemerédi's theorem due to Furstenberg and Katznelson.

Subjects: **Classical Analysis and ODEs (math.CA)**

MSC classes: 42B20

Cite as: [arXiv:1107.2350v1](#) [math.CA]

Submission history

From: Michael Christ [[view email](#)]

[v1] Tue, 12 Jul 2011 17:11:10 GMT (24kb)

[Which authors of this paper are endorsers?](#)

Link back to: [arXiv](#), [form interface](#), [contact](#).

Download:

- [PDF](#)
- [PostScript](#)
- [Other formats](#)

Current browse context:

math.CA

[< prev](#) | [next >](#)

[new](#) | [recent](#) | [1107](#)

Change to browse by:

[math](#)

References & Citations

- [NASA ADS](#)

Bookmark([what is this?](#))

