Mathematics > Functional Analysis

Pointwise convergence of vector-valued Fourier series

Tuomas P. Hytönen, Michael T. Lacey

(Submitted on 1 May 2012)

We prove a vector-valued version of Carleson's theorem: Let Y=[X,H]_t be a complex interpolation space between a UMD space X and a Hilbert space H. For p\in(1,\infty) and f\in L^p(T;Y), the partial sums of the Fourier series of f converge to f pointwise almost everywhere. Apparently, all known examples of UMD spaces are of this intermediate form Y=[X,H]_t. In particular, we answer affirmatively a question of Rubio de Francia on the pointwise convergence of Fourier series of Schatten class valued functions.

Comments:	26 pages
Subjects:	**Functional Analysis (math.FA)**; Classical Analysis and ODEs (math.CA)
MSC classes:	42B20, 42B25
Cite as:	**arXiv:1205.0261 [math.FA]**
	(or **arXiv:1205.0261v1 [math.FA]** for this version)

Submission history

From: Tuomas Hytönen [view email]
[v1] Tue, 1 May 2012 20:55:40 GMT (24kb)

Which authors of this paper are endorsers?