

Texas Tech University. Joint Applied Mathematics – Analysis Seminar.

**Instability in the Problems of Convergence of  
Multiple Fourier Expansions Under the Simplest  
Transformations of Expanded Functions**

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ABSTRACT. We investigate problem of convergence of Fourier expansions (trigonometric Fourier series, Walsh-Fourier series, Fourier integrals) in multidimensional case, namely, we are interested in the following problem. How are the sets of convergence and divergence almost everywhere of multiple Fourier expansion changed when a function  $f$ , which generates this expansion, is changed on the function  $f \circ \psi$ , when  $\psi$  belongs to some class  $\Psi$  of linear transformations of  $\mathbb{R}^N$ ,  $N \geq 2$ , in particular, to the group of rotations of  $\mathbb{R}^N$  about the origin.