KURATSUBO PHENOMENON OF THE FOURIER SERIES OF SOME RADIAL FUNCTIONS IN FOUR DIMENSIONS

Kazuya Ootsubo, Shoichi Fujima, Shigehiko Kuratsubo and Eiichi Nakai

Abstract. On the Fourier series the Gibbs-Wilbraham phenomenon is well known. In 1993, Pinsky, Stanton and Trapa discovered the so called Pinsky phenomenon on the spherical partial sum for the Fourier series of the indicator function of a d-dimensional ball with $d \geq 3$. In 2010, Kuratsubo discovered the third phenomenon in dimension $d \geq$ 5. Recently, Taylor found that the Pinsky phenomenon arises even in two-dimension. In this paper we prove that the Kuratsubo phenomenon arises even in four-dimension.