Decay of the Fourier transform: analytic and geometric aspects. Fourier Analysis: Analytic and Geometric Aspects Lecture Notes in Pure and Applied Mathematics William O. Bray, P. Milojevic, C.V. Stanojevic on. Fourier Analysis: Analytic and Geometric Aspects - Google Books Result Decay of the Fourier Transform: Analytic and Geometric Aspects. The Plancherel formula says that the L^2 norm of the function is equal to the L^2 norm of its Fourier transform. This implies that at least on average, the Fourier transform of a function is related to the behavior of its Fourier coefficients. Fourier analysis is a branch of mathematics that deals with the representation of functions or signals as the superposition of basic waves. It plays an important role in various fields of science and engineering, including signal processing, image processing, and data compression. Fourier analysis is based on the Fourier series, which represents periodic functions as a sum of trigonometric functions, and the Fourier transform, which extends this idea to non-periodic functions. Fourier analysis is a powerful tool for analyzing the frequency content of signals and images, and it has numerous applications in fields such as audio and video processing, telecommunications, and medical imaging.