

Fueter's Theorem and its Generalizations, and their Applications

by

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We will give expositions on two applications of Fueter's theorem and its generalizations in higher dimensional spaces. One is singular integrals on the unit sphere. We will show that using Fueter's theorem and its generalizations one can develop an operator algebra of singular integrals. The result may be extended to Lipschitz perturbations of the unit sphere. The second application is pointwise convergence of Fourier series on the sphere. We show that under this approach results of Dini's type may be achieved without using special functions..