

**Funzioni di variabile complessa.** — *Generalization of Fueter's result to  $\mathbf{R}^{n+1}$ .* Nota di TAO QIAN, presentata (\*) dal Socio E. Vesentini.

ABSTRACT. — Fueter's result (see [6, 8]) on inducing quaternionic regular functions from holomorphic functions of a complex variable is extended to Euclidean spaces  $\mathbf{R}^{n+1}$ . It is then proved to be consistent with M. Sce's generalization for  $n$  being odd integers [6].

KEY WORDS: Clifford analysis; Harmonic analysis; Complex analysis; Singular integrals; Fourier multiplier.

RIASSUNTO. — *Generalizzazione del risultato di Fueter allo spazio  $\mathbf{R}^{n+1}$ .* Il risultato di Fueter [6, 8] sulle funzioni regolari determinate in funzioni olomorfe di una variabile complessa viene esteso allo spazio euclideo  $\mathbf{R}^{n+1}$ . Viene poi dimostrata, per  $n$  intero dispari, la compatibilità con la generalizzazione di M. Sce [6].

We will be working in  $\mathbf{R}^{n+1}$ , the real-linear span of  $e_0, e_1, \dots, e_n$ , where  $e_0$  is identical with 1 and  $e_i e_j + e_j e_i = -2\delta_{ij}$ .  $\mathbf{R}^{n+1}$  is embedded into the Clifford algebra  $\mathbf{R}^{(n)}$  generated by  $e_1, \dots, e_n$ . A typical element in  $\mathbf{R}^{n+1}$  is denoted  $x = x_0 + \underline{x}$ , where  $x_0 \in \mathbf{R}$  and  $\underline{x} = x_1 e_1 + \dots + x_n e_n$ ,  $x_j \in \mathbf{R}$ . If  $x \neq 0$ , then its inverse  $x^{-1}$  exists:  $x^{-1} = \bar{x} |x|^{-2}$ , where  $\bar{x} = x_0 - \underline{x}$ . We will study  $\mathbf{R}^{n+1}$ -variable and Clifford-valued functions and the concepts of left- and right-monogeneity are introduced via the Dirac operator  $D = \frac{\partial}{\partial_0} + e_1 \frac{\partial}{\partial x_1} + \dots + e_n \frac{\partial}{\partial x_n}$  in the usual way. In this *Note*, a function is said to be monogenic if it is both left- and right-monogenic. The Cauchy kernel stands for  $E(x) = \bar{x} / |x|^{n+1}$  and the Kelvin inversion of a function  $f$  is  $I(f)(x) = E(x)f(x^{-1})$ . The symbol  $\mathbf{Z}$  and  $\mathbf{Z}^+$  denote the sets of all integers and positive integers, respectively.

We will use Fourier transform of functions  $f$  on  $\mathbf{R}^{n+1}$  defined by

$$\mathcal{F}(f)(\xi) = \int_{\mathbf{R}^{n+1}} e^{2\pi i \langle x, \xi \rangle} f(x) dx,$$

and the result (see [7])

$$(1) \quad \mathcal{F}\left(\frac{P_k(\cdot)}{|\cdot|^{k+n+1-\alpha}}\right)(\xi) = \gamma_{k,\alpha} \frac{P_k(\xi)}{|\xi|^{k+\alpha}},$$

(\*) Nella seduta del 7 marzo 1997.

