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Fred F Brackx* (fb@cage.ugent.be), Clifford Research Group, Department of Mathematical Analysis, Galglaan 2, B-9000 Gent, Belgium, and **Bram De Knock, Hennie De Schepper, Nele De Schepper** and **Franciscus Sommen**. *The Multi-dimensional Hermitean Hilbert Transform*. Preliminary report.

We consider the complex Clifford algebra \mathbb{C}_{2n} , equipped with a Hermitean conjugation and a Hermitean inner product. By considering the Witt basis $(f_1, \dots, f_n, f_1^\dagger, \dots, f_n^\dagger)$, one is automatically lead to a decomposition of the Dirac operator ∂ in terms of two Hermitean Dirac operators ∂_z and $\partial_{\bar{z}}$. For functions taking values in \mathbb{C}_{2n} or in spinor space $\mathbb{C}S_n$, Hermitean monogenicity is now expressed as being a simultaneous null-solution of both Hermitean Dirac operators.

The Hermitean Clifford analysis function theory is in full development. In this contribution we introduce a Hermitean Hilbert Transform in relation to a Hermitean Cauchy Transform and the corresponding Szegő and Hardy projections. Given an L_2 -function f , its Hermitean Cauchy Transform $hC[f]$ takes values in \mathbb{C}_{2n+1} , giving rise to a new concept of analytic signal. The boundedness on $L_2(\mathbb{R}^{2n})$ of the Hermitean Hilbert operator hH is investigated, its Fourier symbol is calculated, and connections with the already known Clifford-Hilbert transform are established. (Received September 06, 2006)