

1061-53-119

**Pierre Bayard\*** ([bayard@ifm.umich.mx](mailto:bayard@ifm.umich.mx)), Instituto de Física y Matemáticas, U.M.S.N.H., Edificio C-3, Ciudad Universitaria, C.P. 58040 Morelia, Michoacan, Mexico. *A spinor representation of surfaces in four-dimensional euclidean space (with J. Roth, Paris).*

The second fundamental form of a surface in  $\mathbb{R}^4$  satisfies the equations of Gauss, Ricci and Codazzi. We prove that this system of equations is equivalent to a Dirac equation on the surface. Moreover, a solution of this Dirac equation permits to represent the surface in  $\mathbb{R}^4$ . This representation generalizes to an arbitrary surface the Weierstrass representation formula of a minimal surface in  $\mathbb{R}^4$ . These results extend to the codimension 2 a previous work by T.Friedrich on surfaces in  $\mathbb{R}^3$ . (Received April 10, 2010)