1053-35-362   **petr somberg*** (`somberg@karlin.mff.cuni.cz`), Mathematical Institute, Charles University, 186 75 Prague, Czech Rep. *Invariants of geodesics and conformal geometry.* Preliminary report.

Cauchy-Riemann equations for the existence of a derivative of quaternionic-valued function on R^4 form an overdetermined system of PDE's, usually called the twistor equation. Equations for Killing forms (or, more generally, for functions with values in more complicated representations of the orthogonal group) are overdetermined conformally invariant equations generalizing the twistor equation.

It is well-known that Killing forms on a Riemannian manifold yield tensor fields preserved (covariantly constant) along geodesics. We show that this is just an example of quite general phenomenon underlying the relationship between Riemannian and conformal geometry, i.e. we define generalized Killing tensor-spinors as suitable subspaces of conformal Killing tensor-spinors and prove that their contraction with geodesic vector field is covariantly constant along geodesics. (Received September 11, 2009)