ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

5. Differential Geometry and Global Analysis

1991 MS Classification: 53

Veloso, Jose Miguel, Universidade Federal do Para, Brasil

Almost pseudo-Hermitian manifolds

An *almost pseudo-Hermitian manifold M* is a contact *2n+1*-manifold defined by a contact form θ and a pseudo-complex structure J on the distribution $D = \ker\theta$. We construct a $GL(N,C) - structure$ on M given by the coframes $\theta, \theta^1, ..., \theta^{2n}$, such that $J^*\theta^\alpha = \theta^{\alpha+n}, \alpha = 1, ..., n$ and $d\theta = \frac{1}{2}g_{\alpha\beta}\theta^\alpha \wedge \theta^\beta + g_{\alpha\overline{\beta}}\theta^\alpha \wedge \theta^{\overline{\beta}} + \frac{1}{2}g_{\overline{\alpha\beta}}\theta^{\overline{\alpha}} \wedge \theta^{\overline{\beta}}$, On this structure we define a linear connection given by forms θ^α_β such that $d\theta^\alpha = \theta^\beta \wedge \theta^\alpha_\beta + \theta^{\overline{\beta}} \wedge \tau^\alpha_{\overline{\beta}} + \theta \wedge \tau^\alpha$, $\frac{1}{2}dg_{\alpha\beta} - g_{\alpha\gamma}\theta^\gamma_\beta - g_{\alpha\overline{\gamma}}\tau^{\overline{\gamma}}_\beta = A_{\alpha\beta\delta}\theta^\delta$, $dg_{\alpha\overline{\beta}} + g_{\overline{\beta}\gamma}\theta^\gamma_\alpha - g_{\alpha\overline{\gamma}}\tau^{\overline{\gamma}}_{\overline{\beta}} - g_{\alpha\gamma}\tau^\gamma_{\overline{\beta}} + g_{\overline{\beta\gamma}}\tau^{\overline{\gamma}}_\alpha = 0$, $g_{\alpha\gamma}\tau^\gamma + g_{\alpha\overline{\gamma}}\tau^{\overline{\gamma}} = E_{\alpha\beta}\theta^\beta$, $A_{\alpha\beta\delta} + A_{\beta\delta\alpha} + A_{\delta\alpha\beta} = 0$, $A_{\alpha\beta\delta} + A_{\alpha\delta\beta} = 0$, $E_{\alpha\beta} = E_{\beta\alpha}$. This generalizes pseudo-Hermitian manifolds. An example are real hypersurfaces of the tangent manifold of Heinsenberg group.