

## ON THE EXTENSION OF $\mathbf{h}^p$ -CR DISTRIBUTIONS DEFINED ON ROUGH TUBES.

G. HOEPFNER\* & JORGE G. HOUNIE<sup>†</sup> & L. A. CARVALHO DOS SANTOS<sup>‡</sup>

We consider rough tubes  $X + i\mathbb{R}^m \subset \mathbb{C}^m$  and generalized  $CR$  functions in  $L^\infty(X, h^p(\mathbb{R}^m))$ , where  $h^p(\mathbb{R}^m)$ ,  $0 < p < \infty$ , is Goldberg's semilocal Hardy space. We show that if  $X$  is arcwise connected by rectifiable arcs all such  $CR$  functions can be extended to the convex hull of the tube as  $CR$  functions  $\in L^\infty(\text{ch}(X), h^p(\mathbb{R}^m))$ . This extends previous work of the authors.

### References

- [1] M. S. BAOUENDI AND F. TREVES, *A property of the functions and distributions annihilated by a locally integrable system of complex vector fields*, Ann. of Math. **113**, 387–421, (1981).
- [2] S. BERHANU, P. CORDARO AND J. HOUNIE, *An Introduction to Involutive Structures*, Cambridge University Press, 2008.
- [3] S. BERHANU AND J. HOUNIE, *A generalization of Bochner's extension theorem to rough tubes*, J. Geom. Anal., to appear. (<http://www.dm.ufscar.br/cursos/pos/preprintsDM/preprints2010/Btube.pdf>)
- [4] S. BOCHNER, *A theorem on analytic continuation of functions in several variables*, Ann. of Math. **39**, 14–19, (1938).
- [5] S. BOCHNER AND W. T. MARTIN, *Functions of several complex variables*, Princeton University Press, 1948
- [6] A. BOGGESS, *CR Manifolds and the Tangential Cauchy-Riemann Complex*, Studies in Advanced Mathematics, CRC Press, (1991).
- [7] A. BOGGESS, *The holomorphic extension of  $H^p$ -CR functions on tube submanifolds*, Proc. Amer. Math. Soc. **127**, 1427–1435, (1999).
- [8] BOIVIN AND DWILEWICZ, *Extension and Approximation of CR Functions on Tube Manifolds*, Trans. Amer. Math. Soc. **350**, 1945–1956, (1998).
- [9] D. GOLDBERG, *A local version of real Hardy spaces*, Duke Math. J., **46**, 27–42, 1979.
- [10] G. HOEPFNER, J. HOUNIE AND L. A. CARVALHO DOS SANTOS, *Tube structures, Hardy spaces and extension of CR distributions*, Trans. Amer. Math. Soc., to appear.
- [11] G. HOEPFNER, J. HOUNIE AND L. A. CARVALHO DOS SANTOS, *on the extension of  $\mathbf{h}^p$ -CR distributions defined on rough tubes*, Proc. Amer. Math. Soc., to appear.
- [12] M. KAZLOW, *CR functions and tube manifolds*, Trans. Amer. Math. Soc., **255**, 153–171, (1979).
- [13] H. KOMATSU, *A local version of Bochner's tube theorem*, J. Fac. Sci. Univ. Tokyo Sect. 1A, **19**, 201–204, (1972).
- [14] F. TREVES, *Hypo-analytic structures*, Princeton University Press, (1992).

---

\*Departamento de Matemática, Universidade Federal de São Carlos, São Carlos, SP, Brasil, e-mail: hoepfner@dm.ufscar.br

<sup>†</sup>Departamento de Matemática, Universidade Federal de São Carlos, São Carlos, SP, Brasil, e-mail: hounie@dm.ufscar.br

<sup>‡</sup>Departamento de Matemática, Universidade Federal de São Carlos, São Carlos, SP, Brasil, e-mail: luis@dm.ufscar.br