

## Local tube realizations of CR-manifolds and maximal Abelian subalgebras

GREGOR FELS AND WILHELM KAUP

**Abstract.** For every real-analytic CR-manifold  $M$  we give necessary and sufficient conditions that  $M$  can be realized in a suitable neighbourhood of a given point  $a \in M$  as a tube submanifold of some  $\mathbb{C}^r$ . We clarify the question of the ‘right’ equivalence between two local tube realizations of the CR-manifold germ  $(M, a)$  by introducing two different notions of affine equivalence. One of our key results is a procedure that reduces the classification of equivalence classes to a purely algebraic manipulation in terms of Lie theory.

**Mathematics Subject Classification (2010):** 32V05 (primary); 32V40, 32M25, 17B66 (secondary).