TOKYO J. MATH.
VOL. 2, NO. 1, 1979

Some Remarks on Subvarieties of Hopf Manifolds

Masahide KATO

Sophia University

Introduction

A holomorphic automorphism g of a complex space $\mathfrak{X}$ is called a *contraction* to a point $O \in \mathfrak{X}$ if g satisfies the following three conditions:

(i) $g(O)=O$,

(ii) $\lim_{\nu\to+\infty} g^{\nu}(x)=O$ *for any point* $x \in \mathfrak{X}$,

(iii) *for any small neighborhood* U *of* O *in* $\mathfrak{X}$, *there exists an integer* ν_0 *such that* $g^{\nu}(U)\subset U$ *for all* $\nu \geqq \nu_0$,

where g^{ν} is the ν-times composite of g. By [2]*, the complex space $\mathfrak{X}$ which admits a contracting automorphism is holomorphically isomorphic to an algebraic subset of C^N for some N. We identify $\mathfrak{X}$ to the algebraic subset of C^N. Then there exists a contracting automorphism $\tilde{g}$ of C^N to the origin O such that $\tilde{g}|_{\mathfrak{X}}=g$ ([2], [3]). Obviously the action of $\tilde{g}$ on $C^N-\{O\}$ is free and properly discontinuous. Hence the quotient space $H=C^N-\{O\}/\langle\tilde{g}\rangle$ is a compact complex manifold which is called a *primary Hopf manifold*. Sometimes we indicate by H^N an N-dimensional primary Hopf manifold. The compact complex space $\mathfrak{X}-\{O\}/\langle g\rangle$ is clearly an analytic subset of a primary Hopf manifold. A compact complex manifold X of dimension n ($n \geqq 2$) is called a *Hopf manifold* if its universal covering is holomorphically isomorphic to $C^n-\{O\}$ (Kodaira [4]).

The purpose of this paper is to show several properties of subvarieties of Hopf manifolds.

§1. Hopf manifolds.

The following proposition shows that it is sufficient to consider only subvarieties of primary Hopf manifolds.

PROPOSITION 1. *Any Hopf manifold is a submanifold of a (higher dimensional) primary Hopf manifold.*

Received June 30, 1978

* In [2], the condition (iii) is forgotten.