1040-53-17 **Adrian Andrada** and **Maria Laura Barberis*** (barberis@mate.uncor.edu), FaMAF-CIEM, Universidad Nacional de Cordoba, Ciudad Universitaria, 5000 Cordoba, Argentina, and **Isabel Dotti**. *A structure theorem for abelian complex nilmanifolds.*

An abelian complex structure on a real Lie algebra $\mathfrak{g}$ is an endomorphism J of $\mathfrak{g}$ satisfying

$$J^2 = -\mathrm{Id}, \qquad [Jx, Jy] = [x, y], \qquad \forall x, y \in \mathfrak{g}.$$

If G is a Lie group with Lie algebra $\mathfrak{g}$, these conditions imply that J is integrable on G. If G is nilpotent and $\Gamma \subset G$ is a lattice, the nilmanifold $\Gamma\backslash G$ with the complex structure induced by J is called an abelian complex nilmanifold. A splitting $\mathfrak{g} = \mathfrak{g}_+ \oplus \mathfrak{g}_-$, where $\mathfrak{g}_\pm$ are Lie subalgebras of $\mathfrak{g}$, gives rise to a product structure E by setting $E \mid \mathfrak{g}_\pm = \pm\mathrm{Id}$. A complex product structure on $\mathfrak{g}$ is a pair of a product structure E and a complex structure J such that $JE = -EJ$.

Abelian complex structures give rise to rich geometric structures on manifolds. For instance, $\mathbb{R}^{4n}$ can be endowed with hypersymplectic structures by using abelian complex product structures.

In this work we show that any nilmanifold with an abelian complex structure is the total space of a holomorphic fibration over a complex torus with fiber a nilmanifold with a complex product structure. We exhibit some new examples as an application of our result. (Received December 26, 2007)