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# THE STRUCTURE OF TWISTED SU(3) GROUPS

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**In order to study how the $C^*$-algebra $C(S_\mu U(3))$ of twisted SU(3) groups introduced by Woronowicz is related to the deformation quantization of the Lie-Poisson SU(3), we need to understand the algebraic structure of $C(S_\mu U(3))$ better. In this paper, we shall use Bragiel's result about the irreducible representations of $C(S_\mu U(3))$ and the theory of groupoid $C^*$-algebras to give an explicit description of the $C^*$-algebra structure of $C(S_\mu U(3))$, which indicates that $C(S_\mu U(3))$ is some kind of foliation $C^*$-algebra of the singular symplectic foliation of the Lie-Poisson group SU(3).**

In recent years, there has been a rapid growth of interest in the theory of quantum groups [**D**]. In particular, S. L. Woronowicz has developed a $C^*$-algebraic theory of quantum groups, which has motivated a lot of research [**B**, **Po**, **Ro**, **S**, **Va-So**, **Wo1**, **Wo2**].

In [**S**], the explicit knowledge of the $C^*$-algebra structure of $C(S_\mu U(2))$ [**Wo1**, **S**] has helped us to find a deformation quantization [**BFFLS**, **Ri1**, **Ri2**, **Ri3**] of the Lie-Poisson SU(2) [**D**, **Lu-We**], which is in a sense compatible with the quantization of the group structure of SU(2) by the "twisted groups" $S_\mu U(2)$. On the other hand, although both $C(S_\mu U(2))$ and $C(S_\mu U(3))$ [**Wo1**, **Wo2**] are defined as universal $C^*$-algebras of certain generators and relations, the algebraic structure of the latter seems to be much more complicated than that of the former. In [**B**], Bragiel classified the irreducible representations of the $C^*$-algebra $C(S_\mu U(3))$ of the twisted SU(3) groups (with $0 < \mu < 1$) and showed that $C(S_\mu U(3))$ is a type-I $C^*$-algebra [**Pe**]. In this paper, enlightened by the ideas in [**M-Re**, **Cu-M**], we shall use Bragiel's result and the theory of groupoid $C^*$-algebras [**Re**] to give an explicit description of the $C^*$-algebra structure of $C(S_\mu U(3))$, which indicates that $C(S_\mu U(3))$ is some kind of foliation $C^*$-algebra of the singular symplectic foliation of the Lie-Poisson group SU(3) [**Co**, **We**, **Lu-We**].

We shall use freely the concepts and properties of the theory of groupoid $C^*$-algebras throughout this paper. A good reference for this is [**Re**]. First let us fix notations. Let $\mathbb{T}$ be the unit circle in $\mathbb{C}$ and $\mathbb{T}^2$ be the two-torus embedded in $\mathbb{C}^2$. We shall denote by $\phi$ and