1023-60-1652 **Takeyuki Hida*** (thida@ccmfs.meijo-u.ac.jp), Department of Mathematics, Meijo University, Tenpaku, Nagoya, 468-8502, Japan. *Complex white noise and infinite dimensional unitary group.*

Complex white noise is invariant under the actions of infinite dimensional unitary group.There are two classes I and II of subgroups: the class I involves subgroups that can be defined by using a fixed base of the basic nuclear space, while subgroups in the class II mainly come from diffeomorphisms of the time parameter space R.

As for the class I, we find projective limit of the subgroup G(n) which is isomorphic tothe n-dimensional unitary group U(n). In addition, there are the Le'vy group, the Windmill subgroup and others. They are well investigated and their characteristic properties have been obtained.

In the class II, there are so-called whiskers (one-parameter subgroups), and they form interesting groups, like Heisenberg group, conformal group as well as the abelian gauge group. They help us to find characteristic properties of complex white noise. Various applications are found. (Received September 26, 2006)