

The quantum 3-plane

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Abstract

We define the quantum 3-plane and the quantum group $Gl_q(3)$ as the group of automorphisms of it.

1 The quantum plane

The quantum plane is defined by the relation of q-commutation:

$$xy = qyx$$

2 The quantum 3-plane

The quantum 3-plane depends of xyz such that:

$$xy + qzy + q^{-1}xz = 0$$

$$qyx + q^{-1}zy + zx = 0$$

$$q^{-1}yx + yz + qxz = 0$$

3 The quantum group $Gl_q(3)$

The quantum group $Gl_q(3)$ is defined as the automorphisms of the 3-plane. The matrices A, A^t respect the relations of the 3-plane so that we obtain 36 relations for the 9 coefficients of the matrix A .

4 Bibliography

C.Kassel, "Quantum Groups", Springer, Berlin, 1995.

A.Guichardet, "Groupes Quantiques ", CNRS editions, Paris, 1995.