

Algèbres non commutatives, théorie des représentations et fonctions  
spéciales  
23 mai - 10 juin 2022

Non-commutative algebras, representation theory and special functions  
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### **On Freidel-Maillet type presentations for $U_q(\mathfrak{sl}_2)$ and $U^+q$**

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In this talk, I will introduce a new type of presentations for the quantum algebras  $U_q(\mathfrak{sl}_2)$  and the positive part of  $U_q(\widehat{\mathfrak{sl}_2})$ , motivated by the subject of quantum integrable systems. Each of those presentations takes the form of K-operators satisfying a system of Freidel-Maillet type equations associated with a R-matrix. The precise relationship with well-known presentations (Chevalley or Drinfeld-Jimbo; Cartan-Weyl or Drinfeld's second realization; Faddeev-Reshetikhin-Takhtadjan) and some recently introduced (Ito-Terwilliger's equitable, Terwilliger's alternating) will be described. Some perspectives will be presented.