Nichols algebras

Nichols algebras are graded algebras with intricate combinatorial properties that appear as fundamental invariants of Hopf algebras. There is a Nichols algebra for each solution of the quantum Yang-Baxter equation. I will overview the definition, some basic properties and open questions on Nichols algebras. Then I will discuss several classes of Nichols algebras, including:

1) Finite-dimensional Nichols algebras of diagonal type: their classification by Heckenberger, the theory of Weyl groupoids, the relation with Lie superalgebras, the determination of the defining ideal by Angiono.
2) Nichols algebras of modules over quantized enveloping algebras with Gelfand-Kirillov dimension, classified by Ufer.
3) Finite-dimensional Nichols algebras over non-abelian groups.
4) Nichols algebras over abelian groups with Gelfand-Kirillov dimension, including joint work by Angiono, Heckenberger and myself.