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# Profinite Rigidity and Colorings by Finite Quandles

Jacques Darné\*<sup>1</sup>

<sup>1</sup>LAMFA, Université de Picardie Jules Verne – Université de Picardie Jules Verne – France

## Résumé

Quandles are algebraic structures introduced independently by Joyce and Matveev in 1982 for coloring knots and links. Specifically, any finite quandle  $Q$  induces a link invariant, which associates to a link  $L$  the number  $\text{col}(L, Q)$  of possible colorings of  $L$  by elements of  $Q$ . One might ask how precise these invariants are: given two distinct links  $L$  and  $L$ , is there always a finite quandle  $Q$  such that  $\text{col}(L, Q)$  is different from  $\text{col}(L, Q)$ ? It is conjectured that this is the case, provided  $L$  cannot be obtained by taking the mirror image of a part of  $L$ . The aim of this talk is not to prove this difficult conjecture, but to show that it can be reformulated in terms closely related to classical questions of profinite rigidity. This will lead us to explore a bit of the theory of profinite quandles.

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\*Intervenant