# Expansions, Lie Algebras, and Invariants.

# July 1-31, 2019

Organizing committee and scientific committee

* Anton Alekseev, Section of Mathematics, University of Geneva, [Anton.Alekseev@unige.ch](mailto:Anton.Alekseev@unige.ch).
* Dror Bar-Natan, Department of Mathematics, University of Toronto, [drorbn@math.toronto.edu](mailto:drorbn@math.toronto.edu), <http://www.math.toronto.edu/drorbn>, contact organizer.
* Roland van der Veen, Mathematisch Instituut, Universiteit Leiden, [roland.mathematics@gmail.com](mailto:roland.mathematics@gmail.com), <http://www.rolandvdv.nl/>.

One Paragraph summary

**Our workshop will bring together a number of experts working on “expansions” and a number of experts working on “invariants” in the hope that the two groups will learn from each other and influence each other.** “Expansions” are solutions of a certain type of intricate equations within graded spaces often associated with free Lie algebras; they include Drinfel’d associators, solutions of the Kashiwara-Vergne equations, solutions of various deformation quantization problems, and more. By “invariants” we refer to quantum-algebra-inspired invariants of various objects within low dimensional topology; these are often associated with various semi-simple Lie algebras. The two subjects were born together in the early days of quantum group theory, but have to a large extent evolved separately. **We believe there is much to gain by bringing the two together again.**