Online Franco-African Seminar in Digital Sciences - LIRIMA
Wednesday September 28 2022, 4:00 pm

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Formal methods and computational mathematics

Computers are widely used as observation instruments for testing and refining conjectures, in a broad range of mathematical areas. They actually even substantiate actual proof steps in published proofs. In particular, a large class of computer proofs today involve symbolic computations, often produced by computer algebra systems. While these systems have become amazingly efficient, they also tend to exhibit awkward behaviors on seemingly innocuous queries. This talk will discuss the challenges raised by the formal verification of symbolic computation. It will also present a different kind of software for doing computer-assisted mathematics, called proof assistants.

Biography

Assia Mahboubi is a tenured researcher (directrice de recherche) at Inria, in the Gallinette team, Nantes, France. She is also an endowed professor in the Algebra and Number Theory section of the Vrije Universiteit Amsterdam, in the Netherlands.

Her research interests revolve around the foundations and formalization of mathematics in type theory and the automated verification of mathematical proofs. In particular, she is interested in the new insights that one often gets on familiar mathematical objects when looking for their most adequate formal representation for the purpose of computer-aided proof checking. She also has a special interest for the interplay between computer algebra and formal proofs, and more generally for computer-aided mathematics.