Why some functions do not have any elementary primitive

Andrea Rivezzi
Université de Haute-Alsace / Università degli Studi di Milano Bicocca

It is well known that there are some real functions that do not admit any elementary primitive (for example the famous Gaussian function). A the same time, not so many mathematicians know the reason, and the techniques involved in this context. In the first part of this talk, we will define precisely what is an elementary function. Then we will sketch, using a theorem of Joseph Liouville (19th century), the fact that a very specific class of functions (in which the Gaussian belongs) does not admit any elementary primitive.