Seminar

Mechanizing Mathematics

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Mechanisation of Mathematics refers to the use of computers to generate or check mathematical proofs. An interactive theorem prover is a software tool which partly automates and checks such 'proofs' by human-machine collaboration. This is very distinct from the way computers were traditionally employed in mathematics to solve equations, compute numerical approximations or to plot diagrams in softwares like Mathematica or Mathlab.

The impact of recent developments in automated and interactive theorem proving on the practice of everyday mathematics range from proving theorems such as Boolean Pythogorean Triplets, to checking correctness of mathematical proofs and programs, such as proofs of Four Color Theorem and Kepler Conjecture. In this talk, I intend to present a brief survey of the history and current developments in interactive theorem proving, while simultaneously addressing questions about the necessity and importance of such an endeavor, as well as the theoretical challenges it poses in terms of logical foundations of mathematics. I will further briefly discuss my contributions in the field namely- formalization of knot theory, and ongoing going work on formal certification of output of a computer algebra system in logic called FORT.

Thursday, Jan 10th 2019

4:00 PM (Tea/Coffee at 3:30 PM)

Auditorium, TIFR-H