INVITED LECTURE

Professor Makoto Tatsuta (National Institute of Informatics, Japan) is going to lecture on

“Brotherston's Conjecture: Equivalence of Inductive Definitions & Cyclic Proofs”

on Monday 23 April 2018, at 5.00 pm in Room H6 (former Room B)

ABSTRACT

An inductive definition is a way to define a predicate by an expression which may contain the predicate itself. The predicate is interpreted by the least fixed point of the defining equation. Inductive definitions are important in computer science, since they can define useful recursive data structures such as lists and trees. Inductive definitions are important also in mathematical logic, since they increase the proof theoretic strength. Martin-Lof's system of inductive definitions given in 1971 is one of the most popular system of inductive definitions. In 2006 Brotherston proposed an alternative formalization of inductive definitions, called a cyclic proof system. In general, for proof search, a cyclic proof system can find an induction formula in a more efficient way than Martin-Lof's system, since a cyclic proof system does not have to choose fixed induction formulas in advance. The equivalence of the provability of Martin-Lof's system for inductive definitions and that of the cyclic proof system was conjectured in 2006. The speaker and Berardi solved it last year. This talk will explain this problem from basic background knowledge to the latest results.
ABOUT THE SPEAKER:

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Prof. Makoto Tatsuta is Professor at the National Institute of Informatics in Tokyo. He holds a PhD in Science from the University of Tokyo. His research interests include Theoretical Computer Science and Mathematical Logic. Professor Tatsuta has (co-)authored over 54 research articles in high impact international journals and conference proceedings.