- Name

  Toshiyasu Arai

- Research field

  Mathematical logic

- Key words

  Proof theory, Ordinal analysis

- Present research

  I study proof theory, a field in mathematical logic. In proof theory we are concerned with formal proofs in mathematics. I study mainly ordinal analysis. It is a field in proof theory, in which we associate ordinals with formal theories, thereby we are trying to unravel hidden structures in theories. In recent years I have shifted focus from formal proofs in second order arithmetic to ones in set theory

- Notice for the students

  Prerequisites for studying mathematical logic are (naive) set theory, and a small portion of the mathematics. If you have experienced to learn any one of fields in mathematics seriously, then you may begin to study logic. This means that you should be accustomed in thinking mathematically through such experiences In mathematical logic one think formally, and you need to learn logic for acquiring such mode of thinking. Let me suggest you to begin with the completeness theorem in logic, and the incompleteness theorem in formal theories, both of which are due to K. Gödel.