# Exact WKB analysis via computers

## (Joint work with N. Honda and T. Koike)

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The use of computers has been indispensable for the progress of the theory of the exact WKB analysis. In the first half part of this lecture, we look back over some results of numerical experiments that had been the base of the theory. More than fifteen years ago we started our numerical experiments for Stokes curves using a computer with an 8086 microprocessor. Although that computer was poor, the observation through those experiments yielded several results such as computaion of monodromy matrices of second-order linear ordinary differential equations of Fuchsian type. Now we have desktop computers as powerful as the supercomputers of fifteen years ago. As a result, we are able to treat various types of differential equations nowadays. In the latter half part, we present some results of numerical and computer-algebraic experiments concerning some systems of nonlinear differential equations with a large parameter and discuss what we can see through them.