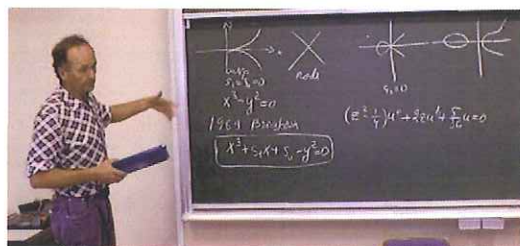


Pathways Lecture Series in Mathematics, KEIO



Speaker:
Prof. A.G. Aleksandrov
(Moscow)

Lecture 1 16:30~18:00 November 30, 2006 (Thursday)

Place: 14-203, 2nd Floor, 14th Building, Yagami Campus

Lecture 2 13:30 ~14:30 December 02, 2006 (Saturday)

Place: 14-216, 2nd Floor, 14th Building, Yagami Campus

Lecture 3 15:00~16:00 December 02, 2006 (Saturday)

Place: 14-216, 2nd Floor, 14th Building, Yagami Campus

Theory of logarithmic differential forms and its applications

The purpose of these lectures is to give an elementary introduction to the theory of logarithmic differential forms originated by K.Saito, and to describe some of the less known applications of this theory developed by the author in the past few years, in complex analysis, in topology and geometry of singular varieties and in the theory of differential equations. In particular, we describe some relations between properties of logarithmic differential forms and torsion differentials on singular hypersurfaces, a natural extension of the classical Poincaré residue to the case of singular hypersurfaces, a variant of the Grothendieck local duality for non-isolated non-normal reduced hypersurface singularities. We also discuss a new method for computing the index of vector fields on hypersurfaces and complete intersections with arbitrary singularities, the theory of multi-logarithmic differential forms, and some applications to the theory of differential equations.