

# Global and multi-local optimization in the semi-infinite programming context

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## **Abstract**

Semi-infinite programming (SIP) problems appear in some important engineering fields such as air pollution control, optimal signal sets design, production planning and robot trajectory planning. Numerical methods for solving SIP problems can be classified in three major classes; discretization, exchange and reduction type methods. In the context of a reduction type method for SIP, multi-local optimization plays an important role.

Getting the optimal feeding trajectory in a fed-batch fermentation processes can be formulated as a SIP problem. When some assumptions are made about the feeding trajectory, this SIP problem can be reformulated as a global optimization problem.

The talk will be divided in two major parts. One is devoted to the global optimization and applications to control optimization and another is devoted to the multi-local optimization field with application to semi-infinite programming.

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