



## Prof. Alberto Isidori

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# Geometry in Feedback Design

### Abstract

Geometric methods have constantly played a fundamental role in the analysis and design of feedback systems. Geometry has been the natural tool to understand basic concepts such as controllability and observability, to address basic design issues such as non-interacting control and disturbance decoupling and, in more recent times, to solve problems of asymptotic tracking and disturbance rejection.

This lecture presents an historical overview of how geometric methods in feedback design have been developed and are used, with emphasis on some recent advances concerning the extension, to nonlinear systems, of the classical internal model principle. Examples will be presented that demonstrate the effectiveness of geometric design methods in a number of relevant control problems which include autonomous landing, robust tracking, suppression of periodic disturbances.

### About the Speaker

Alberto Isidori is one of the fathers of the geometric approach to nonlinear control that has started to revolutionize the field of nonlinear control some 30 years ago. Since then he has made numerous fundamental contributions to nonlinear control that are now considered the foundations of the discipline.

Prof. Isidori was educated in electrical engineering at the University of Rome where he also became a professor in 1975. Since 1989 he has also held a part-time position in the Department of Electrical and Systems Engineering at Washington University in St. Louis. He is author of several highly influential books and has received numerous major prizes for his work, including the Giorgio Quazza Medal. This medal is the highest technical award given by the International Federation of Automatic Control.

**Wednesday, 16 January 2008, 4 p.m.**

**V 38.04, Universitätsstraße 38, Campus Stuttgart-Vaihingen**

Further information:

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