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MATHEMATIKKOLLOQUIUM

Der **Frankreich-Schwerpunkt der Universität Innsbruck** und
das Institut für Mathematik laden zu folgendem Vortrag ein:

Henri Bourlès
LAAM, Conservatoire National des Arts et Métiers, Paris

Poles and Zeros at Infinity of Linear Systems

Poles and zeros at infinity of linear systems, which are not as well known as finite ones, are linked to the impulsive motions which can arise in a system. Nevertheless, transmission poles and zeros at infinity are quite classical: the existence of transmission poles at infinity proves that the system output depends on derivatives of the system input; a step function, which is a typical input for an open-loop system, then gives rise to an output which is a linear combination of the Dirac distribution and its derivatives – a phenomenon to be avoided –; transmission zeros at infinity are a useful notion to solve various problems such as the algebraic model matching. The other kinds of poles and zeros at infinity (especially uncontrollable poles and unobservable poles at infinity) are still misunderstood by most people of the control community, although these notions go back to Kronecker when he introduced infinite elementary divisors of matrix pencils. All poles and zeros at infinity are presented in this talk in a unified framework which is based on the algebraic module theory and can be viewed as an up-to-date presentation of Kronecker's ideas applied to control systems.

Zeit: **Donnerstag, den 26. April 2007 um 10^{30} Uhr**

Ort: **Bauingenieurgebäude, Technikerstrasse 13, HSB 8**

Ulrich Oberst

Gäste sind herzlich willkommen!