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# Colloquium

## *Characterization of stabilization by observability inequalities of stabilization*

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### Abstract

Given a linear control system in a Hilbert space with a bounded control operator, we establish a characterization of exponential stabilizability in terms of an observability inequality. In general, characterizations of stabilization are presented by certain frequency conditions which are in "frequency domain". Our characterization is given in "time domain". The way to approach the aim is as: we realize that the exponential stabilization is equivalent to a special kind of controllability, and then by the duality argument, it is equivalent to a weak observability inequality.

This is a joint work with Emmanuel Trelat and Yashan Xu.

Date: 21 January 2020 (Tuesday)  
Time: 4:00pm - 5:00pm  
Venue: Room 222, Lady Shaw Building,  
The Chinese University of Hong Kong, Shatin

*All are Welcome*