

**Author:**

Hartmut Logemann, University of Bath, UK

**Title:**

Stability of infinite-dimensional Lur'e systems and integral control

**Abstract:**

Lur'e systems are feedback interconnections of linear dynamical systems and static nonlinearities. In the work to be presented, we will consider forced Lur'e systems, the underlying linear system of which is assumed to be a well-posed infinite-dimensional system. The input and output spaces of the well-posed system are product spaces and the nonlinear feedback interconnects one "component" of the output to one "component" of the input. We will present and discuss stability results of ISS type which are reminiscent of certain classical finite-dimensional absolute stability theorems. The stability results will be applied in the context of an integral control problem, namely that of set-point tracking for stable well-posed linear infinite-dimensional systems in the presence of input nonlinearities (including saturation).

The material presented in the talk is based on joint work with Chris Guiver (Bath) and Mark Opmeer (Bath).