## Controllability of linear distributed hereditary systems on Hilbert spaces

Andréa Cristina Prokopczyk Universidade de São Paulo, Brazil

Abstract. This work is concerned with the controllability problem for distributed hereditary systems described by the equation

$$x'(t) = Ax(t) + L(t)(x_t) + Bu(t),$$

where  $x(t) \in X$ ,  $u(t) \in U$ , X and U are Hilbert spaces,  $x_t : [-r, 0] \to X$ is defined by  $x_t(\theta) = x(t + \theta)$ , A is the infinitesimal generator of a strongly continuous semigroup on X,  $L : [0, \infty) \to \mathcal{L}(C([-r, 0], X) \to X))$  is strongly continuous, and  $B : U \to X$  is a bounded linear map. Our objective is to compare the controllability of this system with the controllability of the non delayed system

$$x'(t) = Ax(t) + Bu(t), \quad t \ge 0,$$

with initial condition  $x(0) = x^0$ .