SEMINÁRIOS

SÉRIES TEMPORAIS, ONDALETAS E DADOS FUNCIONAIS

LOCAL: **IME, USP, Sala 249, Bloco A**

DATA: **03 de setembro de 2015**

HORÁRIO: **15h30**

ESTIMATION OF CAUSAL FUNCTIONAL LINEAR REGRESSION MODELS
J.C.S. de Miranda (IME-USP)

We present a methodology for estimating causal functional linear models using orthonormal tensor prod- uct expansions. More precisely, we estimate the functional parameters α and β that appear in the causal functional linear regression model:

$$\mathcal{Y}(s) = \alpha(s) + \int_a^b \beta(s,t)\mathcal{X}(t)dt + \mathcal{E}(s),$$

where $supp\ \beta \in \mathcal{T}$, and $\mathcal{T}$ is the triangle whose vertexes are (a,a), (b,a) and (b,b). We assume we have an independent sample $\{(\mathcal{Y}_k, \mathcal{X}_k) : 1 \leq k \leq N, k \in \mathbf{N}\}$ of observations where the $\mathcal{X}_k$s are functional covariates, the $\mathcal{Y}_k$'s are time order preserving functional responses and $\mathcal{E}_k$, $1 \leq k \leq N$, is i.i.d. zero mean functional noise.