

## Seminario Aleatorio

*Sesión 370*

# A Power Prior Approach for Leveraging External Longitudinal and Competing Risks Survival Data within the Joint Modeling Framework

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### Abstract

In this paper, we propose a new partial borrowing-by-parts power prior for carrying out the analysis of co-longitudinal and survival data within the joint modeling framework. The borrowing-by-parts power prior facilitates borrowing the information from a subset of the data, from a subset of the model parameters, or from the different parts of the joint model. The deviance information criterion is used to quantify the gain in the fit of the current longitudinal and survival data when leveraging external co-data. A Markov chain Monte Carlo sampling algorithm is developed for carrying out Bayesian computations.

The proposed methodology is motivated by two large concurrent clinical trials: Selenium and Vitamin E Cancer Prevention Trial (SELECT) and Prostate, Lung, Colon, Ovarian (PLCO) prevention trial. In both trials, the longitudinal biomarkers and competing risks survival data were collected. A detailed analysis of the PLCO and SELECT data is conducted to demonstrate the usefulness of the proposed methodology.

This is a joint work with Md. Tuhin Sheikh, Jonathan A. Gelfond, and Joseph G. Ibrahim.

**Viernes 20 de agosto de 2021, 13:00 horas de CDMX**

<https://itam.zoom.us/j/92830440546?pwd=VXVrenJBb2xreGxHMXA4a043RDBQdz09>

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