



**UNIVERSIDAD CATOLICA
DE LA SANTISIMA CONCEPCION**

**Seminario del Departamento de
Matemática y Física Aplicadas
Facultad de Ingeniería**

**“Mark point patterns for bubble diameter distribution in a metallurgical
flotation process”**

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Abstract

This job develop a marked point processes model, where the marks will be dependent of the intensity of the point locations, or in other words the intensity of occurrence of events. In this case the application will be in a metalurgic process of mineral where we expect to obtain the bubble size distribution, from the sample of bubbles of the flotation cell.

For modeling the intensity of the bubbles apperance, which is randomness, we used statistical models. In this case we propose a marked point process model with intensity dependent. we assume that the point process becomes from a log gaussian cox process where the intensity is modeling like a gaussian random field with exponential covarince function.

This is a flexible model for finding the bubble size distribution. Firstly we do a descriptive analysis of the data base and calculate some test for detecting dependence between marks and locations with the characteristics functions $E(r)$ and $V(r)$, after do that we propose a model for the bubble distribution like intensity-dependent models in Myllymaky (2009).

We presenting the model of marked point process with intensity dependent with his respective results of the ajustment, which will be obtained through bayesian methods.

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