

**ISOTONIC REGRESSION GEOMETRICAL ASPECTS AND AN
APPLICATION TO THE ESTIMATION FOR MAXIMUM LIKELIHOOD
TO THE EXPONENTIAL FAMILY**

Edcarlos Miranda de SOUZA¹
Lucas Monteiro CHAVES²
Joel Augusto MUNIZ²

- *ABSTRACT: A theoretic review about the isotonic regression concepts is presented, showing that this theory is directly linked with convex analysis. It is shown among other things the existence and unity of isotonic regression and the relationship between this methodology with the restricted maximum likelihood estimation, when the restriction is the assortment of the parameters. A didactic sequence is presented, with the inclusion of figures in some demonstrations.*
- *KEYWORDS: Restricted parametric space; isotonic space; ordered parameters; simple order; partial order.*

¹ Universidade Federal do Acre – UFAC, Centro de Ciências Exatas e Tecnológicas, Caixa Postal 500, CEP: 69915-900, Rio Branco, AC, Brasil. E-mail: profedcarlos@hotmail.com

² Universidade Federal de Lavras – UFLA, Departamento de Ciências Exatas, Caixa Postal 3037, CEP: 37200-000, Lavras, MG, Brasil. E-mail: lucas@dex.ufla.br / joamuniz@ufla.br