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Overcoming convergence problems in PLS path modelling



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Biography: At the interface of chemometrics, statistics and applied mathematics, the work of Mohamed Hanafi is particularly targeted on the analysis of multiblock data. This work slowly became part of a global and integrated approach including a very wide spectrum of contributions ranging from design to the application of methods. In this context, Mohamed Hanafi was able to develop methods and remove methodological obstacles that allowed major clarifications on the mechanisms and mathematical foundations of the methods; thus opening the way to many developments. Currently, the work of Mohamed Hanafi is focused on the development of a generic methodology, including new concepts, and transversally to the various existing methodological approaches.

Abstract:

The present talk deals with convergence issues of Lohmöller's procedure for the computation of the components in the PLS-PM algorithm. More datasets and proofs are given to highlight the convergence failure of this procedure. Consequently, a new procedure based on the Signless Laplacian matrix of the indirect graph between constructs is introduced. In several cases that will be specified in this paper, both monotony and error convergence for this new procedure will be established. Several comparisons will be presented between the new procedure and the two conventionally used procedures (Lohmöller's and Hanafi-Wold's procedures).

Keywords: Partial least squares path modelling ; Lohmöller's procedure ; Hanafi-Wold's procedure ; Laplacian matrix ; Signless Laplacian matrix.

**Wednesday, February 22, 2023
(10:30 am, DG0 meeting room)**