

**Abstract for poster at the 1st International Circular Hydrometallurgy Symposium
(ICHS 2024)**

Abstract topic: Numerical modelling developments on bioleaching process

In the current context of growing demand for mineral resources and the depletion of primary resources in Europe, the reprocessing of waste containing metals is becoming increasingly attractive. Mining waste can represent an interesting resource. However, the processes dedicated to their reprocessing must remain economically viable and their environmental performance particularly satisfactory, especially since their metal content is low. Bioprocesses constitute a family of technologies that can meet the technical and economic constraints for the recovery of metals in this type of waste. Among the different existing bioprocesses, bioleaching is the most widespread example in the industrial world for the extraction of critical and strategic metals for the EU. It is a very complex process that includes coupled hydrodynamic, physicochemical, and biological phenomena. During the last 30 years, various numerical models have been developed to try to answer fundamental questions about the parameters that control these phenomena, as well as to facilitate the application of the bioleaching technologies, particularly concerning aspects related to the scale-up of this process. The proposed poster represents an opportunity to present the developments that have been made in recent years by the BRGM bioleaching team on different software covering different bioleaching mechanisms, such as gas-liquid transfer phenomena, heat transfer, hydrodynamic aspects, and the integral simulation of bioleaching processes. It will also give a glimpse on further development of the numerical models, particularly in the framework of the project CICERO (HORIZON-RIA Grant Agreement n°101137560).

Presenter: Douglas Pino-Herrera (BRGM, F-45060 Orléans, France)

Email: d.pinoherrera@brgm.fr