# Control of Ex-Situ Soil Bioremediation

**Abstract**
*for the*
Advances in Supervision and Control Systems
Young Generation Viewpoint

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THIS paper presents the application of modelling and control to the operation of a biopile. A biopile is a confined heap of soil, excavated from a polluted site, in which bacterial activity is enhanced in order to promote the degradation of the pollutants. For that purpose, in is important to control the parameters which have the most influence on the biodegradation rate, such as moisture content, temperature pH, etc. While a lot of effort has been made by the scientific community to understand the processes that drive bioremediation using more and more advanced models, the control of those key parameters is still at an early stage and techniques such as "man in the loop" or "open loop" control remains common practice for applications in the soil phase.

TerraNova is an EU fifth framework project for the development of an accelerated ex-situ bioremediation system. One of TerraNova's novel aspects is the control of soil temperature via an inserted pipe matrix. A temperature control system, developed and tuned based on temperature step tests was implemented for a $3m^3$ pilot-scale TerraNova process. The first results of closed loop control of the soil temperature are discussed.