DIPARTIMENTO DI INGEGNERIA
CORSO DI DOTTORATO IN INGEGNERIA INDUSTRIALE E DELL'INFORMAZIONE -
PHD COURSE IN INDUSTRIAL AND INFORMATION ENGINEERING - 35TH CYCLE

Title of the research activity:	Energy and environmental impact of microbial fuel cells application to the animal-waste slurry treatment
State of the Art:	Microbial fuel cells (MFCs) represent an alternative method for treating animal-waste slurry and simultaneously producing electricity. The MFC technology can be applied to animal-waste slurry treatment both by considering it as a renewable power production system that directly converts the organic material in electric energy and by estimating its ability in the treatment of the animal-sewage. In particular, great attention is paid to the nitrogen abatement capacity, since nitrogen is not removed by digestion processes. This bacteria capacity is important because the regulatory framework for the use of sewage sludge imposes a limit on the percentage of nitrogen.
Short description and objectives of the research activity:	The aim of the study is the assessment of energy and environmental performance of MFCs applied to animal-waste slurry treatment. After a research activity on the optimization on MFCs performances, the research will focus on the impact analysis of the application of this technology, also in combination with other ones, for the COD and nitrogen content abatment in animal-sewage. A multi-criteria analysis will be performed to compare this innovative technology application to conventional technologies usually implemented.
Bibliography:	
Scientific coordinator (s)	Prof.ssa Linda Barelli
Contact (s)	linda.barelli@unipg.it Phone: +39 0755853740