

LERU Student REseArch Mobility Programme (STREAM)  
Project proposal



**Host University:**  
Università degli studi di Milano



**Field:**  
Natural sciences, mathematics and statistics

**Specified field, subject:**  
Electro-Fermentation

**Research project title:**  
ElectroMicrobes - Electro-stimulated fermentations as breakthrough of industrial microbial conversions



Possible starting month(s):

Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
				x							

Possible duration in months:

1	2	3	4	5	6
					x

**Suitable for students in:** 1<sup>st</sup> cycle (bachelor students) and 2<sup>st</sup> cycle (master students)

**Prerequisites:** Microbiology, fermentations, microbial metabolism

**Restrictions:** none

**Description:**

Electro-Fermentation (EF) merges traditional industrial fermentation with electrochemistry. An imposed electrical field can influence the fermentation environment and microbial metabolism both in a reductive or oxidative manner. The benefit of this approach can be to produce target biochemicals with improved selectivity, to increase carbon efficiency, to limit the use of additives for redox balance or pH control, to enhance microbial growth or to enhance product recovery. EF can be used to steer both pure culture and microbiome-driven fermentations. EF may bring decisive advantages to both existing and innovative industrial fermentation processes and open new doors in residual biomass utilization towards added-value biorefineries.

**Faculty or Department:** Department of Agricultural and Environmental Sciences, Production, Landscape, Agro energy - Università degli Studi di Milano

**Contact person:** International relations office, University of Milan

**Contact email:** international.programmes@unimi.it.

