



## Graduate School Event

# Thesis Defense Fabienne Jesse (Bollback Group): The Lac Operon in the Wild

**Fabienne Jesse**

IST Austria

Host:

### Abstract:

The lac operon, a genetic module relevant for lactose metabolism, is a classic model system for bacterial gene regulation. The lac operon has been studied extensively in *E. coli*, perhaps the best studied bacterium on the planet. Yet, not much is known about the ecology of *E. coli* and its life outside the laboratory. *E. coli* is typically found in the gut of mammals, but has been found in soil and water environments as well; little is known about its life in these latter environments. The natural diversity of the lac operon outside the laboratory, its role in the ecology of *E. coli*, and the selection pressures it is exposed to, are similarly unknown.

Fabienne has explored the genetic diversity, phylogenetic history and signatures of selection of the lac operon across 20 natural isolates of *E. coli* and divergent clades of *Escherichia*, comparing lac operons of isolates from humans with those of environmental isolates.

Furthermore, she tried to identify the natural genetic variation relevant for phenotype and fitness in the lac operon, comparing growth rate on lactose and LacZ activity of the lac operons of these wild isolates in a common genetic background.

### Short bio:

Fabienne Jesse completed a Propedeuse in Philosophy at the University of Leiden, a BSc in Biology at the Free University Amsterdam and a MSc in Animal Biology at the University of Leiden, before joining IST Austria in September 2011. She has done her bachelor's research project on visual attention in humans at the Netherlands Institute for Neuroscience, and two master's research projects at the University of Leiden, Netherlands, one on adaptation and diversification in *P. fluorescens* in the Evolutionary Biology and Microbiology groups, and one investigating diurnal patterns of singing and song preference in zebra finches in the Behavioural Biology group. She has published her findings of the latter project with Katharina Riebel in the journal *Behavioural Processes* in 2012.

**Wednesday, July 19, 2017 01:00pm - 02:00pm**

Mondi Seminar Room 2, Central Building

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<https://ista.ac.at/en/campus/how-to-get-here/> The ISTA Shuttle bus is marked ISTA Shuttle  
(#142) and has the Institute Logo printed on the side.