We are looking for a highly motivated PhD student for the following project:

“Genetic and epigenetic diversity of clonally propagated plants”

In the last few decades, plant breeding has made great advances with the help of genetic markers. However, the existence of epigenetic control of many important traits in crops can result in circumstances where the identified genotype does not explain the phenotype, thus limiting the informative value of genetic markers. It is for this reason that it is now important to assess the epigenotype of crops and to understand how the environment influences it to further accelerate breeding. This is particularly important in plant family Rosaceae, which includes apples, because despite them being predominately multiplied asexually via vegetative propagation (cloning) large differences in traits and phenotypes can be observed. In comparison to sexual reproduction, vegetative reproduction hugely increases the likelihood of inheritance of epigenetic marks from one plant to another. Therefore it can be more likely that adaptations of plants to their environment that involve epigenetic marks will represent a “memory” of the cultivar that will be transmitted to the next generation by cutting or grafting. Such populations will evolve as the generations go by, to develop different phenotypes with little changes at the level of the DNA sequence.

The aim of this thesis is to perform genome-wide genetic and epigenetic studies in different apple varieties in order to identify the main factors responsible for the appearance of novel varieties during clonal propagation. The successful applicant will require good knowledge in: molecular biology, genetics and bioinformatics. The language of the international research group is English.

Applicants should send: a cover letter briefly summarizing their background and research goals, a CV with contact information, and the names and contact information of three references to etienne.bucher@angers.inra.fr
The lab website can be found here: http://plantepigenetics.ch <http://plantepigenetics.ch/>