



PhD position in Computational Systems biology/Bioengineering: Computational Approaches to Metabolic Flux Regulation in Microbial Ecosystems, f/m

For 1,0 fte

Vacancy number 1.2008.00181

The department of Molecular Cell Physiology at the Faculty Earth and Life Sciences, VU University Amsterdam, offers a PhD position in the NWO-funded Computational Life Sciences project "*Microbial ecosystems and multiple environment stoichiometric analyses (MEMESA)*".

Project

The NWO Computational Life Sciences program funds research on biological systems using theoretical and modelling approaches. The MEMESA project will use computational methods (flux balance analysis, metabolic modelling) to study the regulation of prokaryotic metabolic networks in relation to environmental conditions and the presence of other microorganisms in microbial ecosystems.

Task description

You will develop theoretical approaches to establish optimal metabolic flux distributions (using mixed-integer linear programming techniques with flux balance analysis; FBA) for microorganisms that function in dynamic microbial ecosystems. Multiple optimization criteria will be applied; at the organism (intracellular) and ecosystem level (intercellular). You will study the plasticity of metabolic networks as function of different environments by considering optimal regulation strategies. This will require development of theoretical flux analyses approaches to deal with partially-characterized microbial ecosystems. To do so, FBA will be merged with coarse-grained metabolic network descriptions. You will work in an interdisciplinary team consisting of two biologists and one mathematician as supervisors and two postdocs, a biomathematician or computational biologist (to be hired) and a programmer. You will work closely with the postdoctoral researcher, the tasks will be divided based on your experience and interests, and those of the postdoctoral researcher.

Requirements

We seek an enthusiastic, motivated person with an MSc degree in bioengineering, bioprocess technology, biophysics, biomathematics, computational biology or systems biology. Considering the computational nature of the project, the applicant should have affinity with computer modelling and linear algebra. Preferably the applicant will be familiar with basic microbial physiology and regulation of microbial metabolism. You should be able to function in a multidisciplinary environment.

Details

The appointment will initially be for 12 months starting 1 November 2008 at the latest. After a successful evaluation the contract will be prolonged with 36 months. The employment will have to result in a written thesis by the end of this period. Our fringe benefits of employment can be found at www.vu.nl/vacatures.

Salary

The salary is according to the standards for PhD researchers and is €2.000.- during the first year and increases to €2.558.- during the fourth year, based on a full-time employment.

Information and application

For further information, please consult Dr. F.J Bruggeman (e-mail: frank.bruggeman@falw.vu.nl).

Please send your cover letter and Curriculum Vitae, citing the vacancy-number, before July 21, 2008 to the VU University Amsterdam, Faculty Earth and Life Sciences, attn. Dr. J.M.R.M. Neutelings, directeur bedrijfsvoering, De Boelelaan 1085, 1081 HV Amsterdam, or per email: falw-vacatures@falw.vu.nl.

Any other correspondence in response to this advertisement will not be dealt with.