

Ofertas de trabajo para desarrollar tesis doctoral

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<http://www.biometricsociety.net/2015/12/18/ofertas-de-trabajo-para-desarrollar-tesis-doctoral/>

Job opportunity: Research position available at the Multivariate Statistical Engineering Group (<http://mseg.webs.upv.es>) **Technical University of Valencia (Spain)**

Topic: Advanced multivariate statistical methods for the analysis, monitoring and optimization of biochemical processes

This position is funded by the project *Synthetic biology for bioproduction enhancement: design, optimization, monitoring and control (SynBioFactory)* (DPI2014-55276-C5-1-R), within the frame of the 'Programa Estatal de I+D+i Orientada a los Retos de la Sociedad'.

PROJECT SUMMARY:

SynBioFactory targets at several challenging methodological problems in the interface between Synthetic Biology, systems engineering, and bioprocess engineering. The ultimate goal seeks for Synthetic Biology to become engineering by making the process of designing more systematic (standardized), modular, predictable, robust, scalable, and efficient. Two practical applications will be used as benchmarks:

- Developing efficient production systems for protein synthesis and expression, with emphasis on control of protein expression variability and host-circuit interaction.
- Rational design and optimization of synthetic pathways for the synthesis of commodities, with emphasis on methods and circuits to drive metabolic fluxes so as to maximize yield and productivity, and to manage metabolic burden.

To achieve these goals we will make use of methods from the areas of multivariate statistics, applied mathematics, optimization, and systems engineering and control.

RESEARCH POSITION TASKS

This position deals with research into advanced multivariate statistical methods for the analysis, monitoring and optimization of biochemical processes, with special focus on real-time technologies, dynamics, diagnostics and interpretation. Specific tasks include:

- Grey modeling of biological systems using state-of-the-art multivariate statistical techniques.
- Bioprocess monitoring, missing data imputation and fault diagnosis using latent variable-based multivariate statistical process control.
- Bioprocess optimization using the quality by design approach.
- Model transfer between fermentation scales for fast product development. Scaling-up.

The candidate is expected to interact in a multidisciplinary team, comprising the GIEM group (Multivariate Statistical Engineering Research Group) and SB2C Lab (Synthetic Biology and BioSystems Control Lab) at the Technical University of Valencia, and the (Bio)process Engineering Group at IIM-CSIC. The candidate will be anchored at the GIEM group (Valencia, Spain) with Prof. Alberto Ferrer as supervisor.

The ideal candidate should have a degree in engineering, statistics, (bio)chemistry, computer science, applied mathematics, (bio)physics or equivalent discipline, and have some proficiency in programming languages (*e.g.* Matlab). The candidate is expected to use advanced multivariate statistical methods to develop methods and algorithms for the project.

The candidate must have grades good enough to apply for the PFU grants (see <http://www.mecd.gob.es/servicios-al-ciudadano-mecd/catalogo/educacion/becasayudas-subsuenciones/para-profesores/universitarios/998758.html> for details about the current call).

CHARACTERISTICS OF THE POSITION

- Gross salary around 1100€/month, 12+2 months/year.
- There is also the option to obtain funding for conferences.
- Duration of the contract: 1 year (starting by February 1st 2016).
- The collaboration can be extended via additional funding, *e.g.* FPU grants.

Notice for this year's call, the deadline is next December 22nd 2015

APPLICATION PROCESS

Please send the letter in English, including a personal motivation, your academic grades (including ranked position in the student cohort) and curriculum vitae, to Alberto Ferrer (aferrer@eio.upv.es).

Research position available at the Synthetic Biology and BioSystems Control Lab
(<http://sb2cl.ai2.upv.es>), Universitat Politècnica de València (Spain)

Topic: Advanced methods for the stability analysis and design of genetic synthetic circuits

This position is funded by the project *Synthetic biology for bioproduction enhancement: design, optimization, monitoring and control (SynBioFactory)* (DPI2014-55276-C5-1-R), in the frame of the 'Programa Estatal de I+D+i Orientada a los Retos de la Sociedad'.

PROJECT SUMMARY:

SynBioFactory targets at several challenging methodological problems in the interface between Synthetic Biology, systems engineering, and bioprocess engineering. The ultimate goal seeks for Synthetic Biology to become engineering by making the process of designing more systematic (standardized), modular, predictable, robust, scalable, and efficient. Two practical applications will be used as benchmarks:

– Developing efficient production systems for protein synthesis and expression, with emphasis on control

of protein expression variability and host-circuit interaction.

– Rational design and optimization of synthetic pathways for the synthesis of commodities, with emphasis on methods and circuits to drive metabolic fluxes so as to maximize yield and productivity, and to manage metabolic burden.

To achieve these goals we will make use of methods from the areas of applied mathematics, optimization, systems engineering and control, and multivariate statistics.

RESEARCH POSITION TASKS

This position deals with research into advanced methods for the stability analysis and design of genetic synthetic circuits. Specific tasks include:

- Developing methods for stability analysis of biochemical networks using monotonicity and contraction analysis.
- Developing design methods for biological genetic circuits based on the previous methods.
- Application the rational design and optimization of synthetic pathways for the synthesis of commodities.

The candidate is expected to interact in a multidisciplinary team, comprising the SB2C Lab (Synthetic Biology and BioSystems Control Lab) and GIEM group (research group in multivariate statistical engineering) at the Technical University of Valencia, and the (Bio)process Engineering Group at IIM-CSIC. The candidate will be anchored at the SB2C Lab (Valencia, Spain) with Prof. Jesús Picó and Prof. Enric Picó-Marco as supervisors.

The ideal candidate should have a degree in engineering, applied maths, biophysics, physics or equivalent discipline, and have some proficiency in programming languages (*e.g.* Matlab, Maple). Notice some background in biology, or the willingness to learn cell biology, and even basic biology laboratory skills, will be a requisite. The candidate must have grades good enough to apply for the PFU grants (see <http://www.mecd.gob.es/servicios-al-ciudadano-mecd/catalogo/educacion/becas-ayudassubvenciones/para-profesores/universitarios/998758.html> for details about the current call).

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APPLICATION PROCESS

Please send a letter in English, including a personal motivation, your academic grades (including ranked position in the student cohort) and curriculum vitae, to Jesús Picó (jpico@ai2.upv.es) and Enric Picó-

Marco (enpimar@isa.upv.es)

PDF generado por unlimioo para la Asociación Española de Biometría