



ARISTOTLE UNIVERSITY OF THESSALONIKI

**DEPARTMENT OF CHEMICAL ENGINEERING**

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**Michael Georgiadis, Assoc. Professor**

***Recruiting Beneficiary***

**SyMBioSys ITN Early Stage Researcher in**

***Capturing Heterogeneity Across Many Scales in Biosystems using Population Balance Modelling***

**Salary in the range of 42000 €(Gross amount per annum)**

**Fixed Term appointment for a period of 36 months**

Applications are invited to join a dynamic, multidisciplinary ETN training network, SyMBioSys, which represents an interdisciplinary joint effort of modellers, systems and software engineers, as well as experimentalists and intends to address these challenges by providing an innovative research and training programme for young researchers. The main objective of SyMBioSys is to provide a new generation of innovative and entrepreneurial early-stage researchers (ESRs) that will develop cutting-edge kinetic models for biological processes via systems engineering research and will exploit these for designing novel biotechnological applications. To achieve this, the ESRs projects will be integrated in such a way that all will collaboratively contribute to the building and usage of proper kinetic models of complex biological systems.



Mathematical models play a central role in biological systems engineering, supporting the generation of new testable hypotheses and novel ways of intervention, as well as providing mechanistic explanations of experimental results. Kinetic (i.e. dynamic) models are particularly important since they can explain and predict the functional behavior that emerges from the time-varying concentrations in cellular components. However, there are currently many pitfalls and challenges for kinetic model building.

The skills and competences acquired by the ESRs will open up significant opportunities: 1) working at simulation and bioinformatics companies to develop advanced software and algorithms tools; 2) working at White (industrial) and Red (medical) Biotech companies for biotechnological (e.g. amino acid and monoclonal antibody production) and biomedical (e.g. chemotherapy) applications; and 3) in the academic sector applying the developed tools for the generation of new biological insights (e.g. new insights regarding drug effects in signalling networks for diseased and intact cell systems).

The research program will be carried out in the **Department of Chemical Engineering at Aristotle University of Thessaloniki, Greece**. Applications are invited for a three-year ETN Early Stage Researcher Position in “**Capturing Heterogeneity Across Many Scales using Population Balances**” under the supervision of **Prof. Michael Georgiadis** (see also: <http://pse.cheng.auth.gr/> for more details of the research group)

**The aim of the project is to (i) To develop a population balance (PB) -based modeling framework for capturing heterogeneity across many scale in biological systems engineering problems; (ii) To implement the developed models in PSE’s gPROMS modeling platform.**

#### **Expected Results:**

**PB models for mammalian and drug delivery systems; Systematic model validation using experimental data and advanced parameter estimation techniques in gPROMS; Application studies in model-based optimization and control of mammalian cell bioreactors and drug delivery systems.**

**The successful candidate should be motivated and independent. S(he) should have a first degree/diploma on Chemical Engineering (or related Engineering Discipline). A Master of Science relevant to the Chemical, Biochemical or Biomedical field will be seriously considered.**

#### **Benefits**

This program offers a three year full-time position as researcher with a salary and allowances according to EU regulations for Marie Curie ITN Early Stage Researchers. ESRs in an ITN also undertake a comprehensive personalised development programme with targeted training measures and participate in a range of network events with the consortium partners.

The recruited ESR at Aristotle University of Thessaloniki will have the unique opportunity to work closely with leading European Universities and companies in the field of the project including Imperial College London, Process Systems Enterprise Ltd, UK, CSIC, Spain, EPFL, Switzerland, and others. The researcher will be seconded for several months to



Imperial College London (group of Prof. Sakis Mantalaris in the department of Chemical Engineering) and Process Systems Enterprise Ltd. This will give him/her the opportunity to understand experimental work at Imperial College and advanced modelling and simulation techniques developed at PSE Ltd ([www.psenderprise.com](http://www.psenderprise.com))

### **Eligibility restrictions:**

To be eligible the candidate must have no PhD and less than 4 years' research experience. At the time of the selection, applicants must not have resided or carried out their main activity (work or studies) in **GREECE** for more than 12 months in the 3 years immediately prior to the starting date.

These eligibility requirements for Marie Curie ESRs are non-negotiable and ineligible candidates will not be considered.

If you would like to discuss the project, please contact **Prof. Michael C. Georgiadis**, email: [mgeorg@auth.gr](mailto:mgeorg@auth.gr) Tel: +30 2310 994184 ,

postal address:

**Aristotle University of Thessaloniki  
Department of Chemical Engineering  
School of Engineering  
P.O. Box 455  
Thessaloniki 54124  
Greece**

### **How to apply:**

Our preferred method of application is via email

**Closing date: 30 October 2015**

If you would like to discuss the project, please contact

**Prof. Michael Georgiadis**

**School of Engineering  
P.O. Box 455  
Thessaloniki 54124  
Greece**

**Email: [mgeorg@auth.gr](mailto:mgeorg@auth.gr)**



## Guidelines for Recruitment of ESRs on SyMBioSys

### Eligibility:

**Early-Stage Researchers (ESRs)** can be of **any nationality**. They are required to undertake transnational mobility (i.e. move from one country to another) when taking up their appointment.

**Mobility Rule to be observed when recruiting:** at the time of recruitment by the host organisation, researchers must not have resided or carried out their main activity (work, studies, etc.) in the country of their host organisation for more than 12 months in the 3 years immediately prior to the reference date.

Compulsory national service and/or short stays such as holidays are not taken into account. As far as international European interest organisations or international organisations are concerned, this rule does not apply to the hosting of eligible researchers. However, the appointed researcher must not have spent more than 12 months in the 3 years immediately prior to their recruitment at the host organisation.

For all recruitments, the eligibility of the researcher will be determined at the time of their **first recruitment** in the project. The status of the researcher will not evolve over the life-time of the project, even if they are re-recruited at another beneficiary.

### Duration:

The recruitment of each individual *ESR* will be supported for a **minimum of 3 months and up to a maximum of 36 months**.

### Employment contract:

The host organisation must appoint each eligible researcher under an **employment contract**. Fixed amount fellowships are only permitted where national regulation prohibits the possibility of an employment contract, and only with the prior approval of the Research Executive Agency. The rates applicable in these cases will be 50% of the rates for researchers under an employment contract.

In all cases, the hosts must ensure that the researcher is covered under the **social security scheme** which is applied to employed workers within the country of the beneficiary, or under a social security scheme providing at least sickness and

maternity benefits in kind, invalidity and accidents at work and occupational diseases, and covering the researcher in every place of implementation of the ITN activities. In the case of **secondments** to other beneficiaries or partner organisations, the social security provision should also cover the researchers during these periods.