

**OFFERING ONE POST-DOCTORAL POSITION IN THE  
DEPARTMENT OF CHEMICAL ENGINEERING AT THE  
UNIVERSITY ROVIRA I VIRGILI (TARRAGONA, SPAIN)**

**Project: Optimal design of sustainable chemical processes to  
produce microcapsules**

**Research project:**

The goal of this research project is to **develop hybrid models** by developing systematic tools for the **optimal design of sustainable processes to produce microcapsules**. Specifically, we will investigate the combined use of mathematical programming, process simulation and life cycle assessment principles to automatically generate the best process alternatives that may be implemented and compare with the actual technology used.

Our approach relies on the combined use of multi-criteria mixed integer modeling techniques and life cycle assessment principles as a way of systematizing the computation of process alternatives that may lead to important environmental savings.

The model will be validated with **ongoing collaborations with leading chemical companies inside the CAP-IT** (Advanced encapsulation technology for sustainable detergency) developed under the Marie Curie Actions Industry-Academia Partnerships and Pathways (251298).

**Deadlines and timing:**

Deadline for the paperwork: December 2010.

Starting date: May 2011 (flexible).

All interested candidates must follow the **application procedure** explained in the following link:

<https://pg.taleo.net/careersection/10000/jobdetail.ftl?lang=en&job=378587>

**Salary:**

Gross salary is around 40000 euros/year during one year.

**Job requirements:**

We need young talented individuals who have background in Chemical Engineering, Computer Science or Mathematics. In addition to technical excellence and a good knowledge of English, we also look for skills such as passion for winning, creativity, innovation, initiative, communication, leadership and the ability to work with others.

Knowledge on process modeling (e.g. Aspen Plus, HYSYS...) as well as basic knowledge of mathematical programming and optimization (e.g. gPROMS, GAMS, Matlab...) will be considered as a valuable asset.

**Participations rules:**

- The eligible researcher must have a PhD degree in Chemical Engineering, Computer Science or Mathematics.

- Researchers with a Spanish nationality can NOT apply for this vacancy.
- Applicants who have worked or studied for 12 or more months in the Spain, during the last three years, can NOT apply for this vacancy.
- Exceptions:
- Spanish nationals who have worked and resided in a Third Country, for the last 3 years
- Researchers with a dual nationality (Spanish-other) who have not resided in the Spain for the past 5 years
- Researchers from Third Countries

University Rovira i Virgili has an equal opportunities policy with respect to race, gender, religion or disability. Women are encouraged to apply. Further details on the specific trainings may be obtained by writing to Dr. Laureano Jiménez by e-mail: [laureano.jimenez@urv.cat](mailto:laureano.jimenez@urv.cat).

#### **About the research group:**

The **SUSCAPE group is an internationally recognized** group in process systems engineering that focuses on process simulation and advanced mathematical programming techniques applied to multi-criteria problems ([www.etseq.urv.es/suscapes](http://www.etseq.urv.es/suscapes)). Our group is characterized by an inspiring environment dedicated to research on sustainable process design.

Additional information about the University Rovira i Virgili can be found at:

[http://www.urv.cat/en\\_index.html](http://www.urv.cat/en_index.html)

#### **About Tarragona:**

Tarragona is a medium city (100 000 inhabitants) with a Mediterranean climate and many recreation opportunities (nice beaches, theme parks, tourist resorts and facilities). It is located 100 km Southwest of Barcelona and it is well communicated by train, highways and low cost flights from its own airport.