

# Max-Planck-Institut für Dynamik komplexer technischer Systeme

Max Planck Institute for Dynamics of Complex Technical Systems



The group Bioprocess Engineering at the "Max-Planck-Institute for Dynamics of Complex Technical Systems" offers the opportunity to conduct a **bachelor-/master thesis/internship** within the topic:

## **Purification of Influenza Virus via Chromatography and Ultrafiltration (Downstreaming)**

### **Background:**

The importance of (flu-) vaccines has been steadily increasing due to the latest pandemics. While the cell-culture production of vaccines achieved vast progresses, these processes and the steadily increasing purity demands for pharmaceutical products creates new challenges for the down streaming. In the context of a PhD project dealing with the purification of influenza virus for flu-vaccine production, the student will test/ optimize different chromatography matrices for purification of influenza virus and will evaluate further purification options. The project comprises a broad range of bioproduct downstreaming-steps (virus-harvest, virus inactivation, crossflow filtration, chromatographic separation) as well as analytics (e.g. protein-, DNA-, biological assays, DLS).

### **Content:**

- Establishment and optimization of suitable separation conditions for a selection of chromatographic materials
- Evaluation and development of further purification process steps
- Design of a complete downstreaming scheme based on the combination of these new purification steps as well as the already existing steps

### **Requirements:**

- Interest in topics of bioprocess engineering/ downstream processing & analytics
- Good ability to work in a team
- Personal initiative and the skills for self-organization as well as for independent work
- Good English skills
- Experiences in the area of chromatography and/or ultrafiltration are advantageous

### **We offer:**

- Interesting, topical fields of research
- Numerous already established purification methods and assays
- Excellent equipment & facilities
- Direct supervision

### **Start:**

- flexible

### **The department of bioprocess engineering- profile:**

Our department focuses on the following research fields:

- Mammalian Cell culture in a variety of bioreactors (multi-reactor systems (0.5 L & 1.0 L), bioreactors (1.0 & 5.0 L); Wave®)
- Virus propagation for vaccine production (influenza, MVA)
- Bacterial fermentation of mixed cultures/biofilms
- Downstream processes of viruses and recombinant proteins
- Mathematical modeling of bioprocesses

For more information about the project as well as the department, please visit the homepages:

[http://www.mpi-magdeburg.mpg.de/research/projects/1088/1109/T\\_Jarosch](http://www.mpi-magdeburg.mpg.de/research/projects/1088/1109/T_Jarosch)

<http://www.mpi-magdeburg.mpg.de/research/groups/bpt>

### **Application:**

Your application should include the following parts:

- Curriculum vitae (incl. picture)
- Recommendation letters if available
- Marks

Please send your application as a pdf-file to: [jarosch@mpi-magdeburg.mpg.de](mailto:jarosch@mpi-magdeburg.mpg.de)

