



## Christoph Brandenbusch

**Nationality:** German **Date of birth:** 8 Mar 1982

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### WORK EXPERIENCE

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#### Assistant Professor

**TU Dortmund University, Laboratory of Thermodynamics** [ 31 Mar 2012 – Current ]

City: Dortmund

Country: Germany

#### **Group Leader „Bioprocess Separations and Biologics Formulation Development“**

*Research group of 5-6 public- and third party funded PhD students.*

#### Field of Research

Applied Research in the field of formulation development for (bio)pharmaceuticals as well as bioprocess engineering (specially downstream processing)

- Formulation development in high-concentration protein formulations for subcutaneous injection
- Increasing stability and solubility of biologics in lyophilized formulations
- Long-term stability of nano-carrier delivery systems (micellar systems, liposomes, LNPs)
- Modeling of phase behavior in complex biologic/biopharmaceutical systems
  
- Aqueous two-phase extraction for the purification of pharmaceutical proteins and industrial enzymes
- Development of hybrid ShortCut-models for the prediction of operating windows in pharmaceutical processes
- Reactive extraction of hydrophilic products (green building blocks) from fermentation broth
- Phase separation of long-term stable emulsions from biphasic whole-cell biocatalysis

#### Work Related Qualifications

- Head & Security advisor of Biosafety Level (BSL) 1 and 2 Laboratories
- Security advisor for X-ray Laboratory at the Laboratory of Thermodynamics

#### Scientific Staff

**TU Dortmund University, Laboratory of Thermodynamics** [ 31 Jul 2007 – 12 Mar 2012 ]

City: Dortmund

Country: Germany

- Working on an interdisciplinary research project funded by the German Science Foundation
- Teaching obligations for the course Thermodynamics I for undergraduate students
- Teaching obligations in practical courses for undergraduate students
- Supervising bachelor and master students during their lab-work

## EDUCATION AND TRAINING

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### Habilitation - Venia Legendi in Thermodynamics

**TU Dortmund University** [ 2011 – 2017 ]

Address: Emil-Figge-Str.70, 44227 Dortmund (Germany)

#### Topic of habilitation thesis:

- „A Hybrid Approach to Access Protein Phase Behavior in Pharmaceutical Production Processes“
- Laboratory of Thermodynamics, Prof. Dr. Gabriele Sadowski

#### *venia legendi in thermodynamics*

### PhD Thesis

**TU Dortmund University** [ 2006 – 2011 ]

Address: Emil-Figge-Str.70, 44227 Dortmund (Germany)

#### Topic of PhD thesis:

- „Downstream processing in biphasic biocatalysis by means of scCO<sub>2</sub>“
- Laboratory of Thermodynamics, Prof. Dr. Gabriele Sadowski

**Final grade: „magna cum laude“**

### Diploma in Chemical Engineering

**University of Dortmund** [ 2001 – 2007 ]

Address: Emil-Figge-Str.70, 44227 Dortmund (Germany)

Website: [www.tu-dortmund.de](http://www.tu-dortmund.de)

#### Topic of student thesis:

- „Development and validation of novel modelling strategies for the consideration of associating mixtures“
- Laboratory of Thermodynamics, Prof. Dr. Gabriele Sadowski

**Final Grade 1,0 (A+)**

#### Topic of diploma thesis:

- „Thermodynamic investigations on the workup of long-term stable emulsion originating from biphasic whole-cell biocatalysis by means of supercritical carbon dioxide“
- Laboratory of Biotechnology, Prof. Dr. Andreas Schmid

**Final grade 1,0 (A+)**

### German A-Level (Abitur)

**Viktoriahschule Eseen** [ 1991 – 2001 ]

Address: 45253 Essen (Germany)

#### Achievements:

Participant in the scientific contest „Jugend forscht“ (1999,2000,2001,2002):

- 3-times winner 1<sup>st</sup> round (city wide)
- 1-time winner 2<sup>nd</sup> round (state wide)
- 1-time 4<sup>th</sup> place at federal round (Technology)

## **VOLUNTEERING**

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### **Member of the HuSt Comission at the Department of Biochemical and Chemical Engineering**

[ TU Dortmund University, Dortmund, Germany, 2011 – Current ]

Central commission for all financial matters of the department of biochemical and chemical engineering at TU Dortmund University.

### **Member of the Comission for Public Relations at the Department of Biochemical and Chemical Engineering**

[ TU Dortmund University, Dortmund, Germany, 2006 – 2011 ]

Central commission for public relation matters of the department of biochemical and chemical engineering at TU Dortmund University.

## **SOCIAL AND POLITICAL ACTIVITIES**

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### **Climate Reality Leader**

[ 2005 – Current ]

Member of the climate reality leadership corps of former vice president Al Gores Climate Reality Project.

### **Voluntary lecturer/ mentor for MINT (Mathematics, Informatics, Natural Sciences, and Technology) at Child-DayCare Lumiland**

[ Essen, Germany, 2018 – Current ]

Bringing children age 5+ a first glimpse on science using everyday experiments - e.g.

- Why is the sky blue ?
- Water Circle and Climate.
- Rockets and Planes - Why do they fly ?

## **HONOURS AND AWARDS**

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### **Rottendorf Award in Pharmacy**

Rottendorf Foundation [ 2017 ]

The award is given for a special achievement in pharmacology and pharmacy.

### **Educational award (category 1)**

TU Dortmund University [ 2015 ]

The award is given for outstanding achievements in teaching. Category 1 - 250+ students

### **WYATT Application Note Contest Award**

WYATT Technologies [ 2015 ]

The award is given for an outstanding application note on the use of WYATT Technologies (Santa Barbara, CA) analytical instruments.

### **Prize for up-and-coming teachers in higher education (Hochschullehrernachwuchspreis)**

DECHEMA [ 2015 ]

The prize for up-and-coming teachers in higher education in Technical Chemistry, Chemical Process Engineering and Chemical Engineering is awarded for lectures that have received special recognition at the lecture meeting of the University Teachers' Young Talent Comittee

### **Karl - Schügerl - Award 2009**

Karl - Schügerl Foundation [ 2009 ]

The award is given for an outstanding achievement in the field of biotechnology within a final thesis (Diploma thesis).

## **Sponsorship award**

Blase Stiftung [ 2002 ]

Award is given for an innovative invention made during high-school education.

## **Formal recognition for an outstanding fulfilment of obligations**

Bundeswehr (German Army) [ 2002 ]

The formal recognition was awarded as a result of an outstanding fulfilment of obligations during a maneuver of the 7. armored division.

## **Special price "Jugend forscht 2002"**

Federal ministry of science and development [ 2002 ]

The price is awarded in conjunction with the youth science competition "Jugend forscht" for an innovative and sustainable idea.

## **Special price on environmental protection**

The state of North-Rhine Westphalia, Germany [ 1999 ]

The special price was awarded in conjunction with the youth science competition "Jugend forscht" for a contribution to environmental protection.

## **LANGUAGE SKILLS**

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Mother tongue(s): **German**

### **Other language(s):**

#### **English**

**LISTENING C2 READING C2 WRITING C2**

**SPOKEN PRODUCTION C2 SPOKEN INTERACTION C2**

#### **Spanish**

**LISTENING B1 READING B1 WRITING B1**

**SPOKEN PRODUCTION B1 SPOKEN INTERACTION B1**

*Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user*