

# WWU Münster

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# The City and the University - Intertwined



# A Taste of Münster

A lively student city with a large variety of cultural attractions, sport and leisure options

300.000 inhabitants

9 million tourists per year

High quality of life

Most bicycle-friendly city in Germany: 2.1 bicycles per inhabitant

3rd place nationwide in the development of economic power between 2006 and 2015



# The University of Münster - Overview



# WWU in Numbers

Comprehensive and one of the largest universities in Germany:

- 44,692 students
- 6,800 graduations p.a.
- 614 professors
- 7,900 staff members
- 610 million € budget
- 238 buildings
- 15 departments/faculties



© WWU – Judith Kraft

## WWU | 15 Departments

- Protestant Theology
- Roman Catholic Theology
- Law
- School of Business & Economics
- Medicine
- Educational & Social Sciences
- Psychology & Sports and Exercise Sciences
- History/Philosophy
- Philologies
- Mathematics & Computer Science
- Physics
- Chemistry & Pharmacy
- Biology
- Geoscience
- Music Academy



# WWU & Brazil



## The WWU and Brazil

- Scientific relations between WWU and Brazilian institutions exist for more than 50 years
- Brazil has been defined as a strategic partner country of WWU
- Currently approx. 20 active collaboration agreements with universities and funding agencies





## WWU Brazil Center

- Established in 2010 as an umbrella organization to bring together activities in relation to Brazil
- Liaison Offices opened at the German Center for Research and Innovation São Paulo (DWIH-SP) in 2012 and at Universidade de Pernambuco (UPE) in Recife in 2014
- Nowadays almost 100 members (professors and scientists)
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## WWU & USP: Background

- WWU and USP cooperate since more than 15 years in a broad range of areas:
  - **(Nuclear)Physics, Chemistry, Pharmacy, Medicine, Computer Science, Information Systems, Law, Economics, Sports, Music, and much more...**
  - USP is thus the Brazilian university with the broadest and deepest cooperation with the WWU
- Besides the contacts regarding scientific-academic contents also frequent meetings at the level of the university direction and administration
- Officially formalized cooperation since 2005



Research



# Fostering Interdisciplinary Research Building on Excellent Disciplines

## Clusters of Excellence

Religion &  
Politics

Cell Dynamics  
and Imaging

Mathematics

Battery  
Research

Nanoscience

Neural  
Systems

Evolution  
Research

Instructional  
Science and  
Technology

Data Science

# **Print Topics: Health and Diseases / Translational Plant and Animal Sciences**

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# Cells in Motion Interfaculty Centre (CiMIC)

Multiscale Imaging Centre

Understanding cell dynamics

Chemistry & Pharmacy

- Chemical strategies
- (Bio)chemical labelling

Mathematics & Informatics

- Mathematical strategies,
- Imaging
- Machine learning

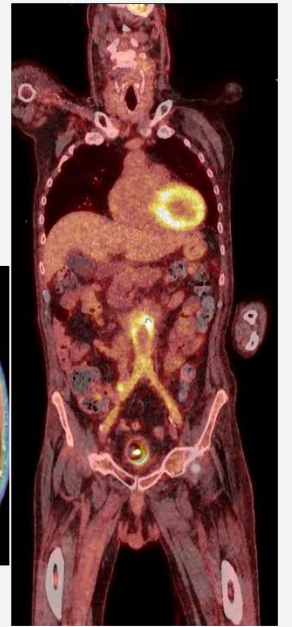
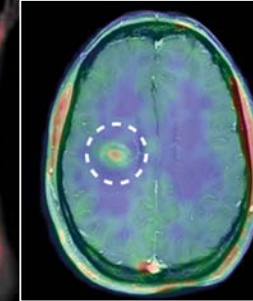
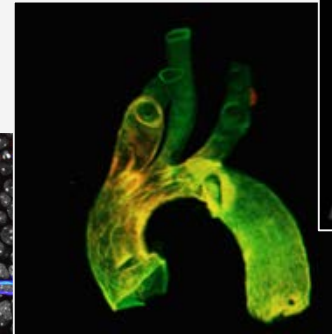
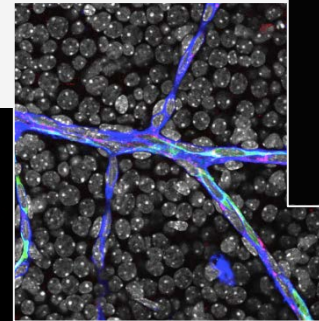
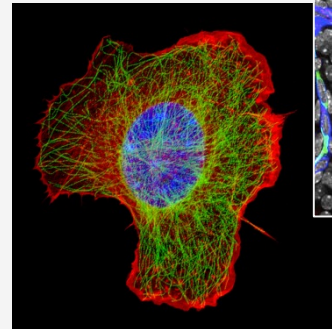
Biology, Medicine,  
computer science  
and physics

Organisms

Tissue

Cell

Subcellular



**Optical imaging**  
*Cell scale*

**Intravital imaging**  
*Tissue scale*

**Whole-body imaging**  
*Organ scale*

# Faculty of Biology

Interdisciplinary research priorities:

- Biotechnology
- Evolutionary Biology and Biodiversity
- Molecular Cell Biology and Physiology

7 institutes:

- Molecular Cell Biology
- Biology und Biotechnology of Plants
- Didactics of Biology
- Evolution & Biodiversity
- Molecular Microbiology and Biotechnology
- Neuro- and Behavioural Biology
- Zoophysiology

Special highlights:

**DFG Research Training Group „Evolutionary Processes in Adaptation and Disease (EvoPAD)”**

- An interdisciplinary PhD programme which integrates biological, medical, and philosophical research
- Use the theory of evolution to understand processes leading to adaptation and disease

**Double Master Degree  
with USP:**



# Print Topic: Earth and Space

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# Faculty of Geography

Institutes:

- Geography (Local/ Regional, Urban, Political)
- Geoinformatics
- Landscape Ecology
- Geology and Palaeontology
- Mineralogy
- Planetology

Highlights:

- Graduate School of Geoinformatics
- Sensebox: also two installed at USP (Spin-Off: re:edu)



# Cluster of Excellence – Mathematics Münster



- Dynamics
- Geometry
- Structure



**CONNECTING MATHEMATICAL FIELDS**  
**CHALLENGING ACCEPTED BOUNDARIES**  
**ACHIEVING MATHEMATICAL BREAKTHROUGHS**

# Center for Nanotechnologies (CeNTech)

2400 m<sup>2</sup> of laboratory and office space

Faculties of the WWU involved: chemistry, physics, biology, medicine

## Research Fields:

- Nano-Analytics
- Nano-Biotechnology
- Nano-Materials (Synthesis and the characterization of new nano materials)
- Nano-Medicine (Use of nanoparticles for biomedical application )
- Photonics/Magnonics
- Nano Fabrication



# Center for Soft Nanoscience

Inaugurated in 13.11.2018

Interdisciplinary center involving medicine, chemistry, physics and biology

## Research Fields & Coordinators:

- Synthesis and self-assembly - Bart Jan Ravoo
- Controllable nanomaterials - Jürgen Klingauf
- Nanotools - Harald Fuchs



**Topics of research:** Self-assembly of organic materials / Nanolithography and nanoanalytics / Dynamics of vesicles / Cellular light nanoscopy / Nanophotonics and single-photon detection / Synthesis of nanoscale systems / Polymer nanocapsules / Polymers and surface chemistry / Electron dynamics of chiral systems / Electron tomography of three dimensional nanomaterials

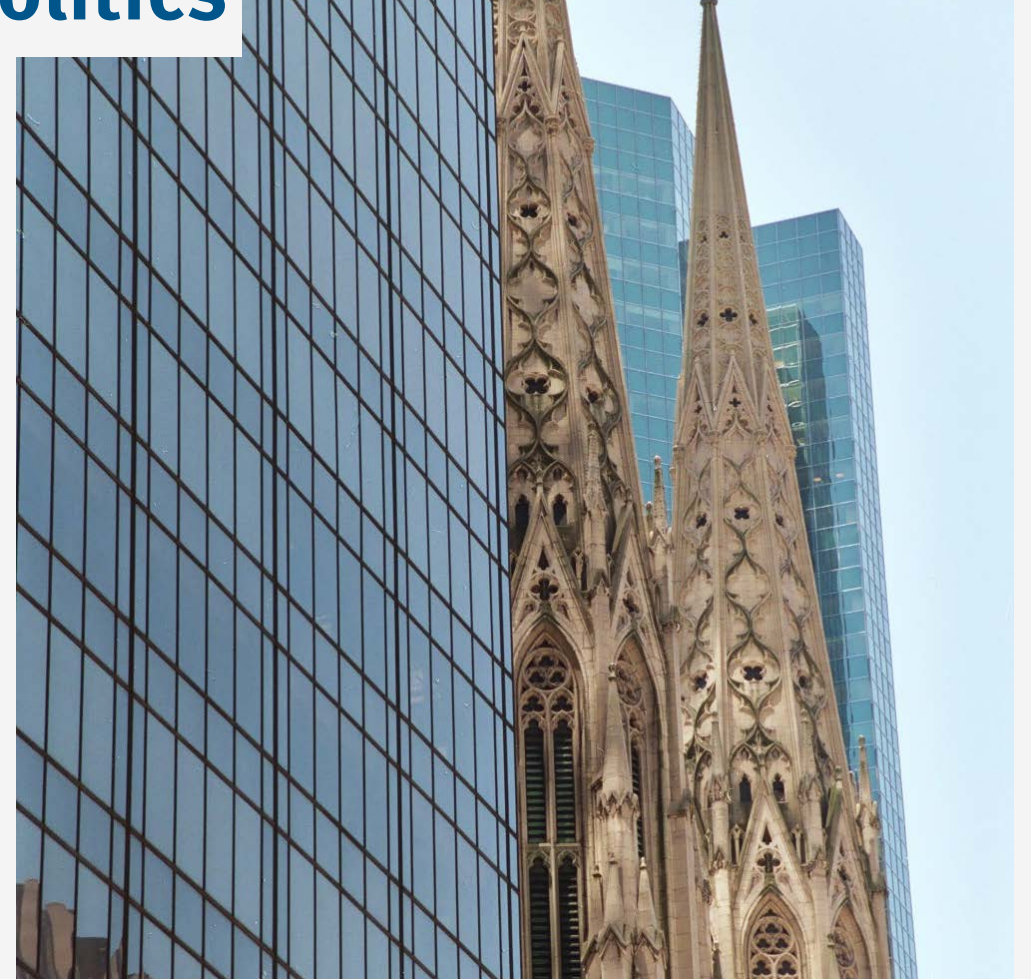
# Print Topic: Arts and Humanities

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# Cluster of Excellence – Religion and Politics

## Dynamics of tradition and innovation

- On the active role of religion and politics in society:  
Religion has been a long underestimated driving force in societal and political changes.
- Comprising members of 20 institutes in the theologies, humanities and social sciences.
- Research on judaism, christianity, islam and their polytheistic predecessors from antiquity until today.
- Establishing a first ever campus of religions at WWU (2022)



# Centre for Digital Humanities

- Increasingly strong demand for digital working methods in the humanities and social sciences at the University of Münster
- A forum for cross-disciplinary knowledge transfer, the CDH unites the existing DH projects and interests at the University of Münster
- Support for the development and use of digital techniques in the humanities and social sciences through a Service Centre



# Print Topic: Technology

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# EUROPEAN\* RESEARCH CENTER FOR INFORMATION SYSTEMS

ERCIS – an international network of **28 outstanding information systems institutions** including USP

- Promotion of **applied research** in the field of **Information Systems**
- Facilitating **communication and collaboration** between academics, partners, industry, and the public sector...
- Promotion of **young and talented researchers**
- Promotion of academic/scientific **education and training**
- Gain **research funding**

\*) ERCIS now also includes non-European members



# MEET Battery Research Center

- Holistic, systemic research and development on electrochemical energy storage systems and transducers
- Synthesis and production, characterization and analysis of materials, components and cells
- Application, including economic efficiency, environmental impact and social impact
- Current focus on research into **lithium ion batteries**; in addition, future battery generations and **alternative electrochemical storage** devices and converters are under intensive development
- Cooperation with external partners from science and industry

Scientific head: Prof. Dr. Martin Winter, Professor for "Materials Science, Energy and Electrochemistry" at the Institute of Physical Chemistry of WWU Münster



**WWU & USP – [wwu.usp](http://wwu.usp)**

**WWU**

# Strategic Partnership [wwu.usp](http://wwu.usp)

## Phase 1: 2015 - 2018

- Funded by the Federal Ministry of Education & Research through the DAAD (German Academic Exchange Service)
- Overall goal: Intensification and deepening of the cooperation in education & research between USP & WWU
- Thematic focus areas:
  - **Neglected Diseases** -> preparation of an International Research Training Group
  - **Law** -> double PhD
  - **Information Systems** -> Integration of USP at the European Research Center for Information Systems/ERCIS

STRATEGIC PARTNERSHIP

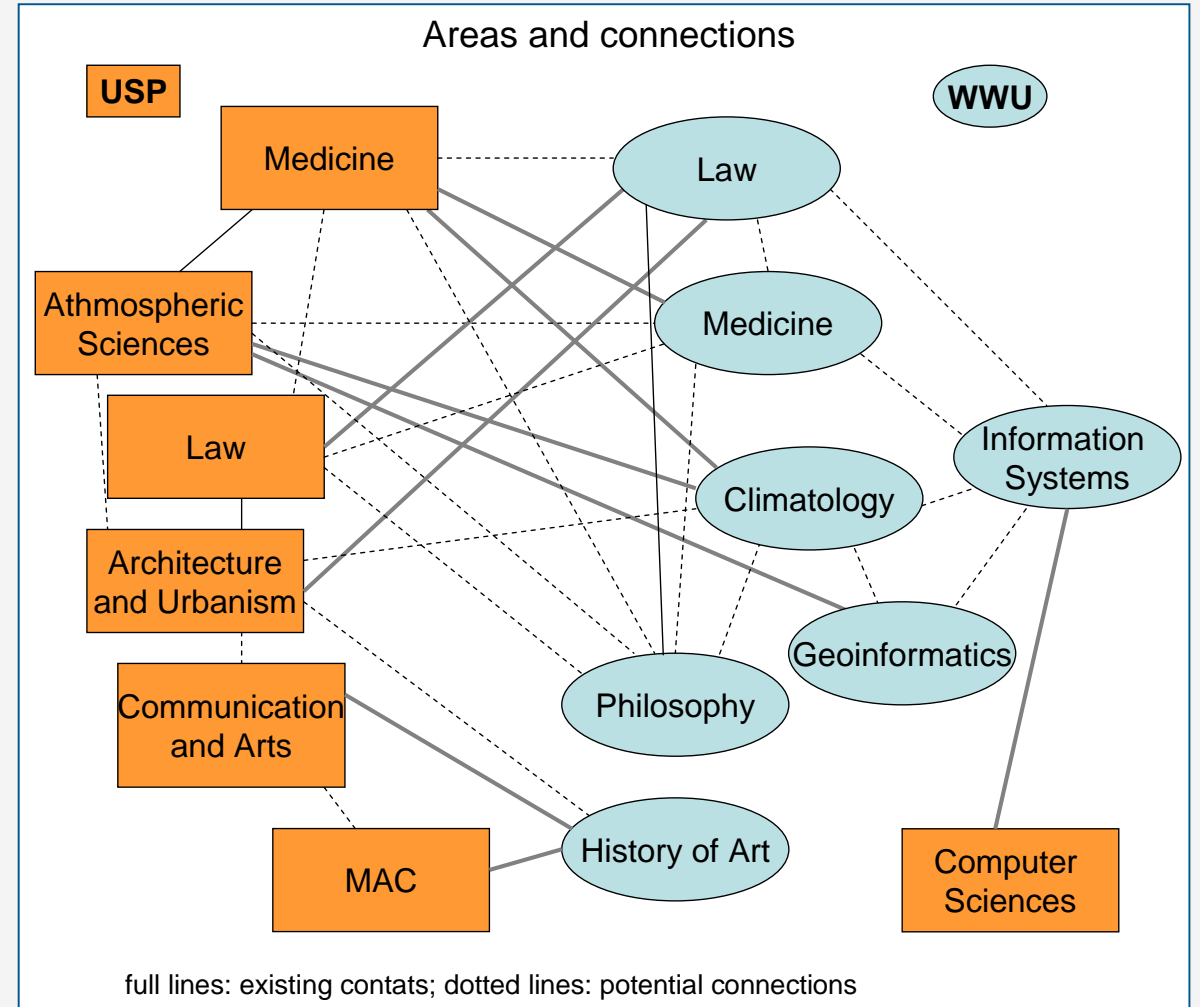
University of Münster

University of São Paulo



## Strategic Partnership Phase 2: Cities & Climate (2019-2020)

- Funded by DAAD
- Interdisciplinary exchange in the thematic realm of „Cities & Climate“
- Final goal: establish an international research training group (funded by DFG)
- Workshops, summer schools, short term stays for professors/postdocs and research stays for PhDs



**Thank you!**



## **Contact**

Email: [brazil.centre@uni-muenster.de](mailto:brazil.centre@uni-muenster.de)

Websites: [www.uni-muenster.de/en/](http://www.uni-muenster.de/en/)

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## Liaison Office in São Paulo

- Provide individual advice for Brazilian students, scientist and professors interested in studying, research or teaching at WWU
- Direct contact to Brazilian partner institutions
- Local support for members of WWU regarding their activities in Brazil
- Representation and promotion of WWU at congresses, student fairs and information seminars
- Creation of a Brazilian Alumni group



# Cooperations with Brazilian funding agencies

## CAPES

- Brazil Chair at WWU since 2011
- 4<sup>th</sup> call to be published with for two positions:
  - *Biodiversity of venoms as a source of bio-pharmaceuticals &*
  - *Smart cities and political online participation*

## FAPESP

- Joint Calls since 2014 within the “SPRINT” program
- Seed funding: mobility for preparation of joint research projects
- Three projects approved by now (SPRINT)
- Next deadline: 28 October 2019



# Neglected Diseases

Structure of the proposed IRTG

1. Employing the cellular response:  
Molecular targets in the host cell
2. Stabbing the tender spots of the bug:  
Molecular targets in the pathogen
3. Bioactive bullets:  
Small molecules to fight infection

Pathogens:

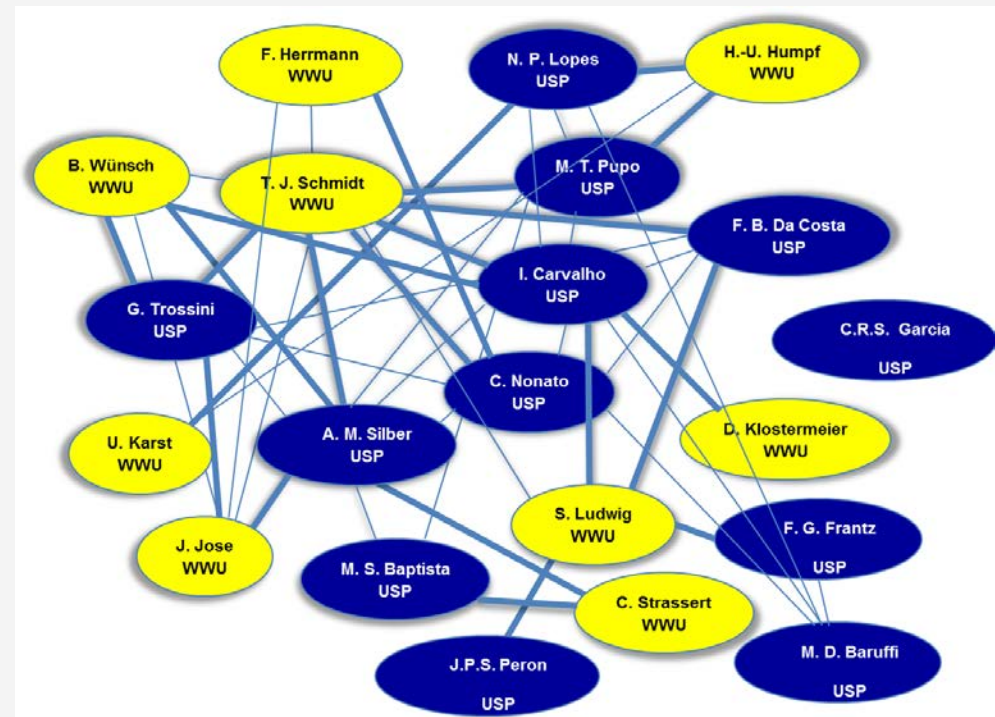
Eukaryotic (Protozoen)

- Trypanosoma cruzi (Chagas disease)
- Leishmania sp. (Leishmaniasis)
- Plasmodium sp. (Malaria)

Bacterial: Mycobacterium tuberculosis (Tuberculosis)

Viral: Influenza / Dengue

## PARTNERING:



# Information Systems

- Decision on the membership of USP into ERCIS
- Identification of 30 joint collaborative research topics between USP and WWU
- Clustering of topics for a common research group
- Two accepted SPRINT proposals and two further funded detailed workshops



# Academic Mobility 2015-2018 Figures



Research grants	Host	Applications	Approved	Implemented
Bachelor/Master	USP	9	5	5
	WWU	6	6	6
PhD	USP	6	6	6
	WWU	9	8	6
Scientist	USP	5	5	3
	WWU	23	13	12
Partial totals	USP	20	80%	88%
	WWU	32	66%	86%
<b>Total</b>		52	71%	86%

# Involved Units



Faculties of ...	WWU	USP
Chemistry, Physics and Pharmaceutical Sciences	7	5
Biology, Medicine, Biotechnology	6	2
Informatics, Economics, Law, Information Systems, Mathematics, Statistics	5	4
Music, Sport, Art, Architecture	2	3
Philosophy, Literature, Language, Art History, Politics	4	1
Environment, Climatology, Agriculture, Energy	2	2
Psychology	1	1
Communication	1	1
Others	-	2
<b>Total</b>	<b>28</b>	<b>21</b>

# Project figures 2015-2018



	Host	Quantity
<b>Supported persons</b>	WWU	69
	USP	48
<b>Involved units</b>	WWU	28
	USP	21
<b>Events</b>	Workshop	7
	Summer/Winter School	6
<b>Agreements</b>	Double-degree	2
<b>Projects</b>	Applications	6
	Approved	4
<b>Publications</b>	Published articles	7
	Accepted articles	1
	Submitted articles	3
	CD Equinócio	1

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# Studying and Teaching

- 120 subjects, 280 degree programmes
- 14 joint programmes  
12 English-taught programmes
- Top ranks in the German Center for Higher Education (CHE) university rankings for the quality of studies
- Full support by Career Centre & Graduate Center

