Research and Education at the Bremen Center of Applied Space Technology and Microgravity

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United Nations/Germany High Level Forum
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Universität Bremen*

*EXZELLENT.
Gewinnerin in der Exzellenzinitiative

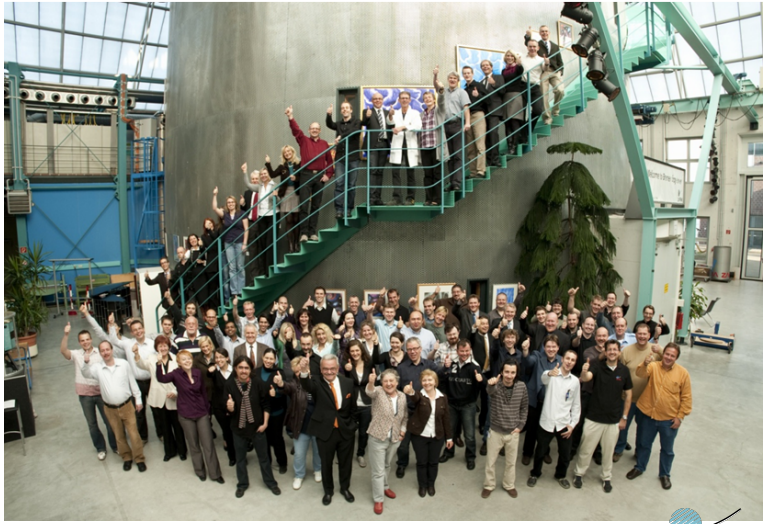
Models of Gravity

CENTER OF
APPLIED SPACE TECHNOLOGY
AND MICROGRAVITY

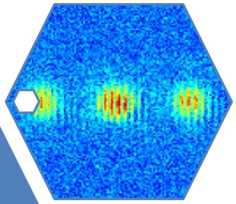
ZARM

ZARM

- University institute (> 80 people)
- ZARM drop tower operation and service company (> 20 people)
- ZARM Technik (> 10 people)



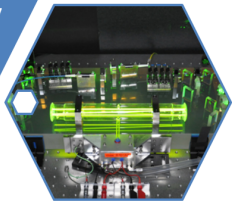
ZARM departments



Space Sciences

Space Technology

Fluid mechanics



ZARM departments: research

Fluid mechanics

- Turbulence modeling
- Multiphase flow
- Combustion
- Habitat research

Space technologies

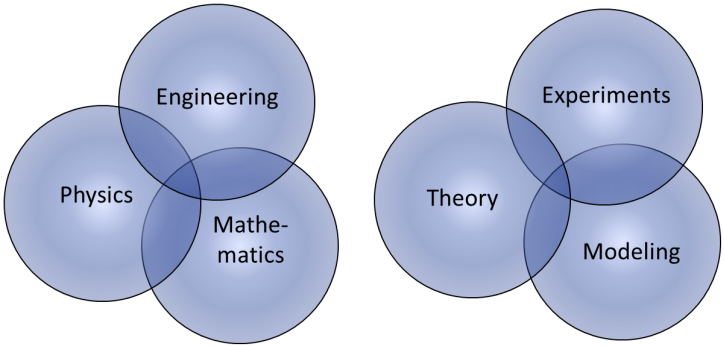
- Optical technologies for space
- Laser interferometry for space
- Space metrology
- Experimental gravity

Space Sciences

- Experiments
  - BECs and quantum sensors
  - Experimental gravity
- Modeling
  - Disturbance forces
  - Satellite simulation
- Theory
  - General relativistic astrophysics
  - relativistic geodesy
  - generalized fundamental theories
  - Thermofluid dynamics

Interdisciplinarity and synergy

interdisciplinary in the topics, synergetic in the methods



Gravitation — Quantum mechanics — Electrodynamics — Space science

Education

University

- Master for Space Sciences and Technologies
- Master for Space Engineering
- STERN projects for master students
- Research Training Group “Models of Gravity”

Others

- DropTes (UN/DLR)
- REXUS - BEXUS (DLR/SNSB)
- Drop your Thesis (ESA)
- Drops (for pupils)
- Teacher education
- Science events

Further issues

Infrastructure

- Drop tower
- Centrifuge
- Shaker
- Thermal vacuum chambers
- Clean rooms

Conferences

- IAC 2003, 2018
- COSPAR 2010
- German Physical Society
- Quantum to Cosmos

Further issues

Research in the drop tower

- fundamental physics
- fluid mechanics
- combustion
- astrophysics, granular materials
- material sciences
- biology
- space technology