



# UNISEC Germany

## Members:

- University of Siegen
- Technical University of Dresden
- University of Würzburg
- ...

## Goals:

- Promotion of joint educational space programs
  - Workshop in order to exchange experiences
  - Joint satellite projects
-

# SpaceMaster

Joint European Master in Space Science and Technology



Erasmus Mundus

**SpaceMaster** is supported by scholarships within the "ERASMUS MUNDUS"-Program of the EU for European elite-curricula. It is offered at University Würzburg in cooperation between Computer Science and Physics/Astronomy, and by the partner universities

- Luleå University of Technology, Sweden
- Cranfield University, United Kingdom
- Czech Technical University, Czech Republic
- Helsinki University of Technology, Finland
- Université Paul Sabatier Toulouse III, France
- University Siegen, Germany

Running since 10 years;

Support by EU has been extended

[www.spacemaster.eu](http://www.spacemaster.eu)

[spacemaster.uni-wuerzburg.de](http://spacemaster.uni-wuerzburg.de)





# New Education Programs

## SpaceTec

Advanced Technology Systems

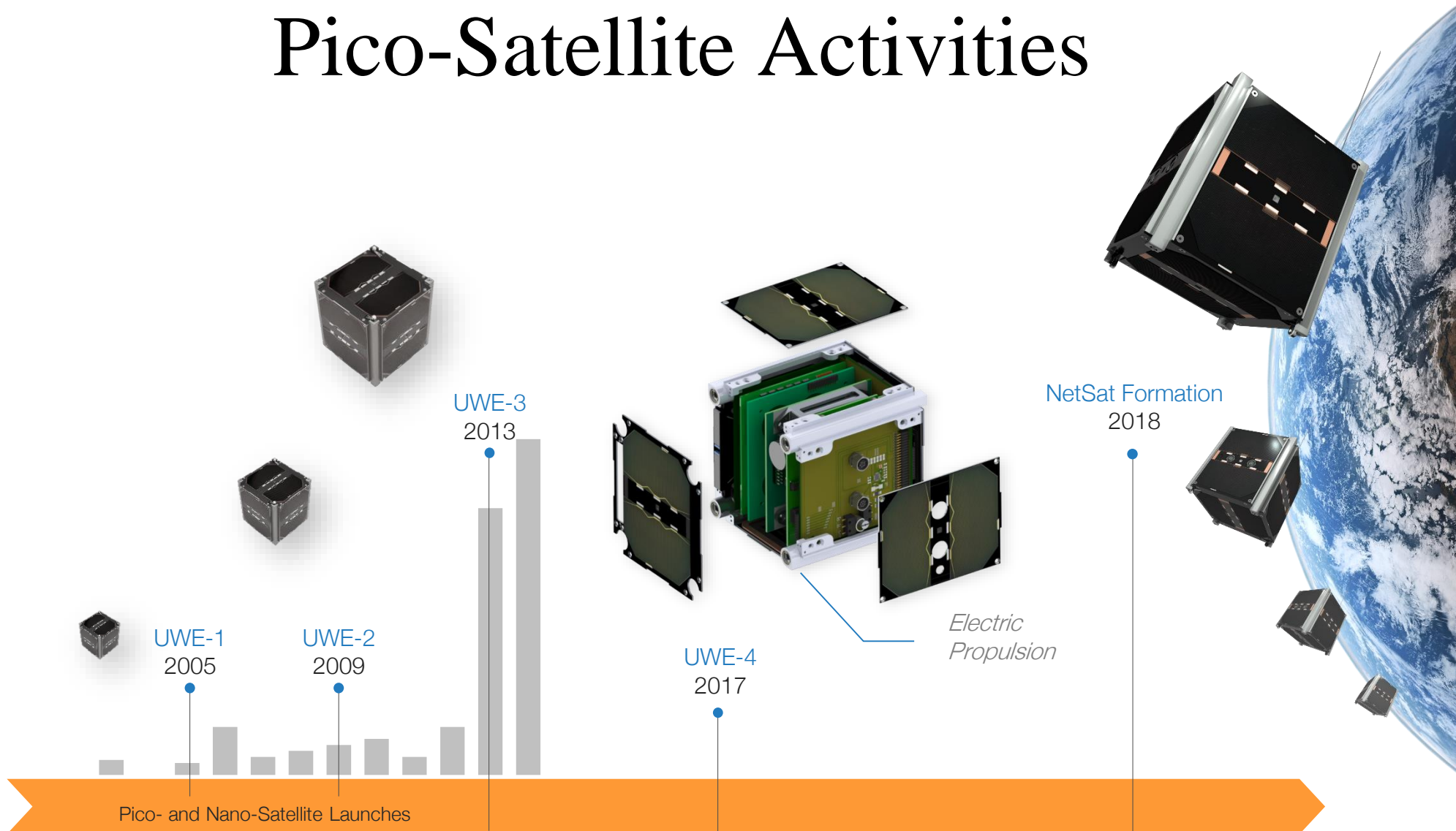


 FRIEDRICH-ALEXANDER UNIVERSITÄT ERLANGEN-NÜRNBERG	 TECHNISCHE UNIVERSITÄT MÜNCHEN  IAS Institut für Astronautische Informationssysteme	 UNIVERSITÄT DER BUNDESWEHR MÜNCHEN der bundeswehr universität  <b>münchen</b>	 Extrater- restrische Physik
 Fraunhofer IIS	 Fraunhofer ISC	 ZENTRUM FÜR TELEMATIK E.V.	 ARC
 European Space Agency	 Earth Observation Center Robotik und Mechanik-Zentrum	 Institut für Raumfahrtantriebe Raumflugbetrieb und Astronautentraining	 AIRBUS DEFENCE & SPACE
 IABG	 OHB Space	 WITTENSTEIN AG	
 SIEMENS	 IFAC INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL	 IAF INTERNATIONAL ASSOCIATION OF SPACE ENGINEERS	 UNISEC GLOBAL UNIVERSITY SPACE ENGINEERING COOPERATION





# Pico-Satellite Activities





# International Summer School Space Technology








4. – 18. September 2017  
Würzburg, Germany

<http://www7.informatik.uni-wuerzburg.de/summerschool>

Space Technology  
**International Summer School**  
04 – 18 September 2017 in Würzburg, Germany  
For advanced students

Julius-Maximilians-  
**UNIVERSITÄT  
WÜRZBURG**




**DAAD**  
Deutscher Akademischer Austausch Dienst  
German Academic Exchange Service



- Aerospace Information Technology
- Spacecraft Design I - II
- Rosetta Mission
- Advanced Sensing & State Estimation I-IV
- Robotics
- Pico & Nano Satellites Workshop
- Exercises

*Preliminary Program*

University of Würzburg Campus



For more information, please visit  
<http://www7.informatik.uni-wuerzburg.de/summerschool>



## 10<sup>th</sup> Pico and Nano Satellite Workshop

*Technology for Small Satellite Research*

September 13-14, 2017  
Würzburg, Germany



Co-Sponsor

UNISEC-Europe



### Organizer

Lehrstuhl für Informatik VII  
Universität Würzburg



### Co-Organizer

Institut für Luft- und Raumfahrt  
Technische Universität Berlin



Zentrum für Telematik e.V.



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Website: [www7.informatik.uni-wuerzburg.de/pina2017](http://www7.informatik.uni-wuerzburg.de/pina2017)

### Call for Papers and Detailed Information

The call for papers and other information will be provided on the following website:

**[www7.informatik.uni-wuerzburg.de/pina2017](http://www7.informatik.uni-wuerzburg.de/pina2017)**

In 2015, selected best contributions have been invited for a paper publication in the IAA book series on Small Satellites. It is intended to continue the book series with contributions from the 10<sup>th</sup> Pico and Nano Satellite workshop in 2017.

### Schedule

- Submission of abstract: July 17, 2017
- Notification of acceptance: August 02, 2017
- Registration closure: August 09, 2017
- Workshop: September 13-14, 2017

### Language

The main language of the workshop is English but contributions in both English and German languages are accepted.

### Workshop Location

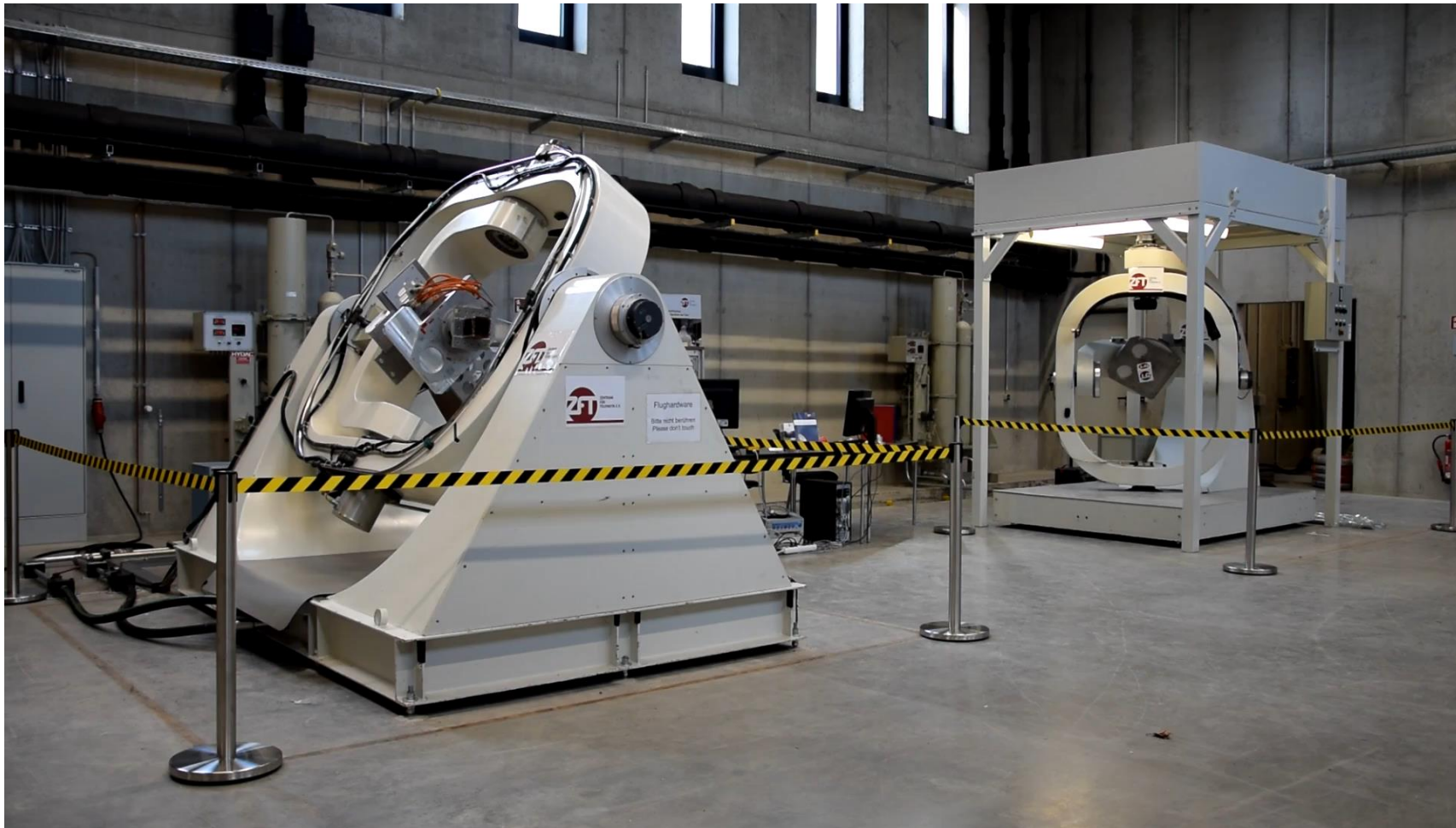
The workshop will be held at the Informatics building, Turing-Hörsaal, located at Hubland campus of University of Würzburg and can quickly be reached by public transport from the city center.





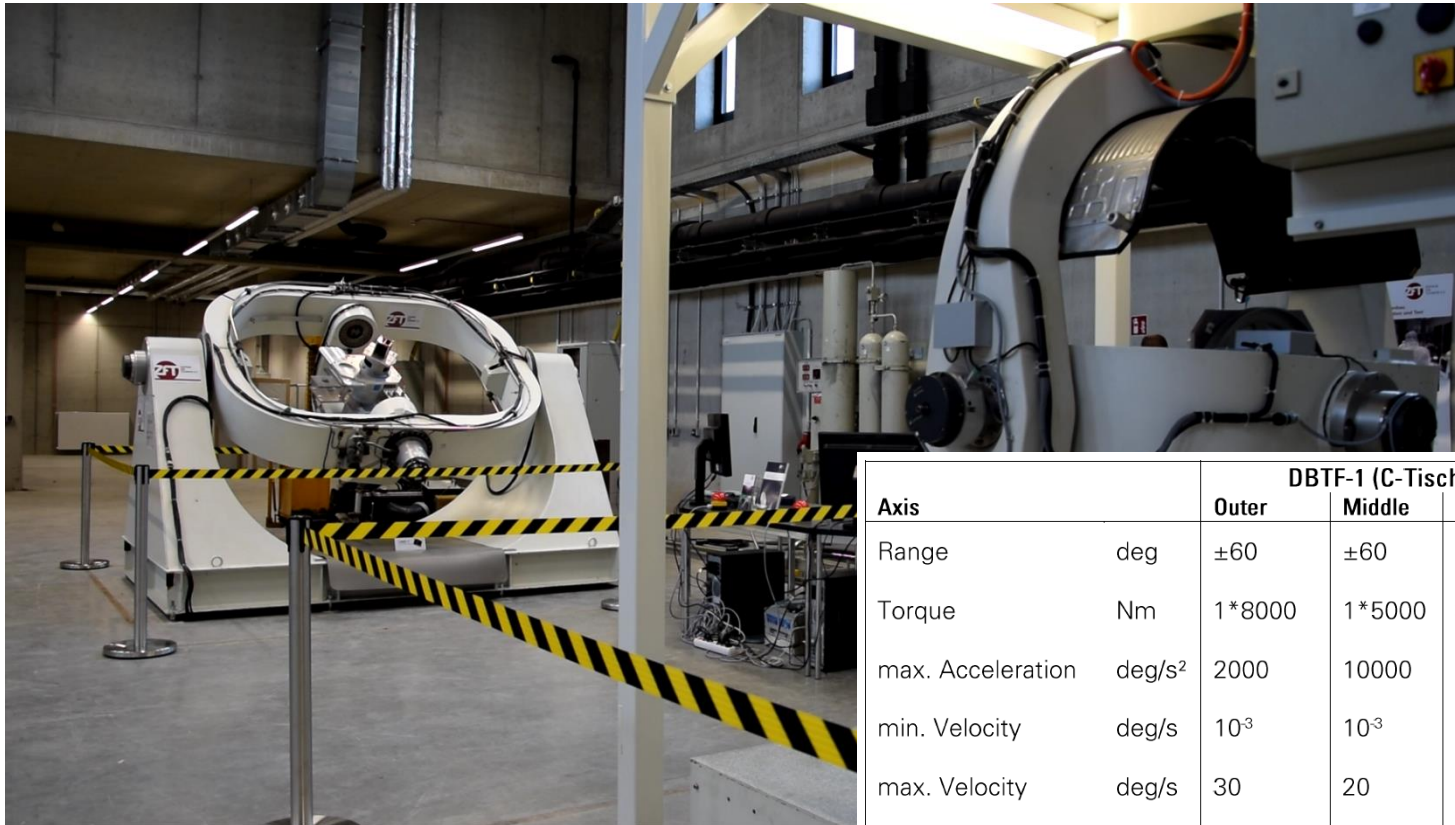


# Precise Dynamic Bench Facility





# Precise Dynamic Bench Facility



Axis		DBTF-1 (C-Tisch)			DBTF-2 (U-Tisch)		
		Outer	Middle	Inner	Outer	Middle	Inner
Range	deg	±60	±60	∞	±120	±120	∞
Torque	Nm	1*8000	1*5000	30	2*4000	2*2500	95
max. Acceleration	deg/s <sup>2</sup>	2000	10000	600	1000	6000	2000
min. Velocity	deg/s	10 <sup>-3</sup>	10 <sup>-3</sup>	10 <sup>-3</sup>	10 <sup>-4</sup>	10 <sup>-4</sup>	10 <sup>-4</sup>
max. Velocity	deg/s	30	20	100	60/150	60/150	60/150
Accuracy	deg	10 <sup>-3</sup>	10 <sup>-3</sup>	10 <sup>-3</sup>	10 <sup>-4</sup>	10 <sup>-4</sup>	10 <sup>-4</sup>
Orthogonality		< 30 arc sec			< 5 arc sec		
Intersection of Axes		< 0.5 mm			< 0.2 mm		





# UNISEC Europe

## Objectives

- joint proposals for space outreach activities to be funded by European Union, ESA
- contributions to CanSat educational programs
- joint CubeSat conferences and exchange of experiences
- organization of small satellite ground station networks to support the CubeSat community
- standardization of electrical and software interfaces

## Members

- UNISEC Germany
- UNISEC Lithuania
- UNISEC Samara
- UNISEC Turkey
- UNISEC Italy
- ...



<http://unisec-europe.eu>



# Subsystem Interface Standardization

- development initiative targeting the agreement on common standards for cubesat subsystem interfaces
- <http://unisec-europe.eu/>

