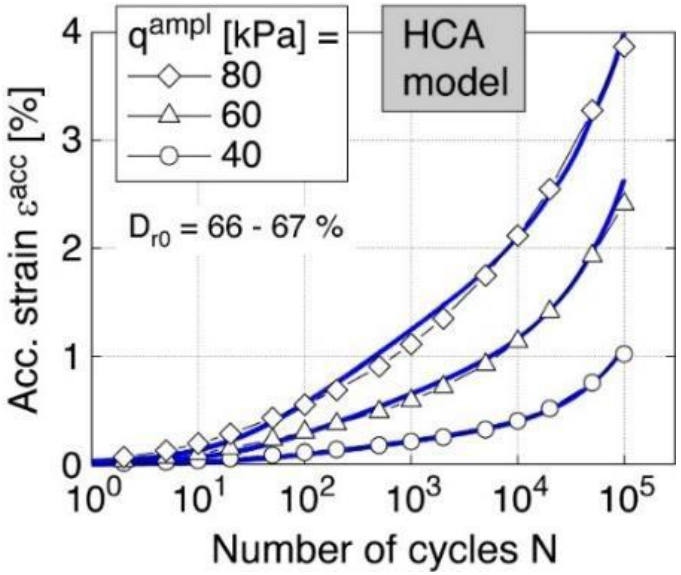
Wind Turbine Technology

2020-2022 German-Greece higher education program on Wind Turbine technology

DAAD Deutscher Akademischer Austausch Dienst German Academic Exchange Service
KIT Karlsruhe Institute of Technology
UNIVERSITY OF PATRAS

Wellcome Address

Prof. Dr.-Ing.habil, Dr.h.c. Theodoros Triantafyllidis
Prof. Demosthenes Polyzos



BP Photo

Targets of the DAAD

The DAAD (German Academic Exchange Service) has a very long and well established relatioship with die Greek counterpart IKY

After the economic crisis 2010 in Greece DAAD has established a procedure for a 3-years common project proposals between German and Greek research partners for

- **The establishment and continuation of co-operations between Greek and German Universities**
- **The internationalization of the studies of the German and Greek Universities**
- **Structural improvements of the teaching and research conditions in Greece with a broad coopoeration between the partners and the industry targeting to a high employment degree of the graduated students**

Scope of the DAAD Projects

Every three years around 16- 20 Proposals are awarded with a maximum volume of 240T€ each.

Some of the targets include:

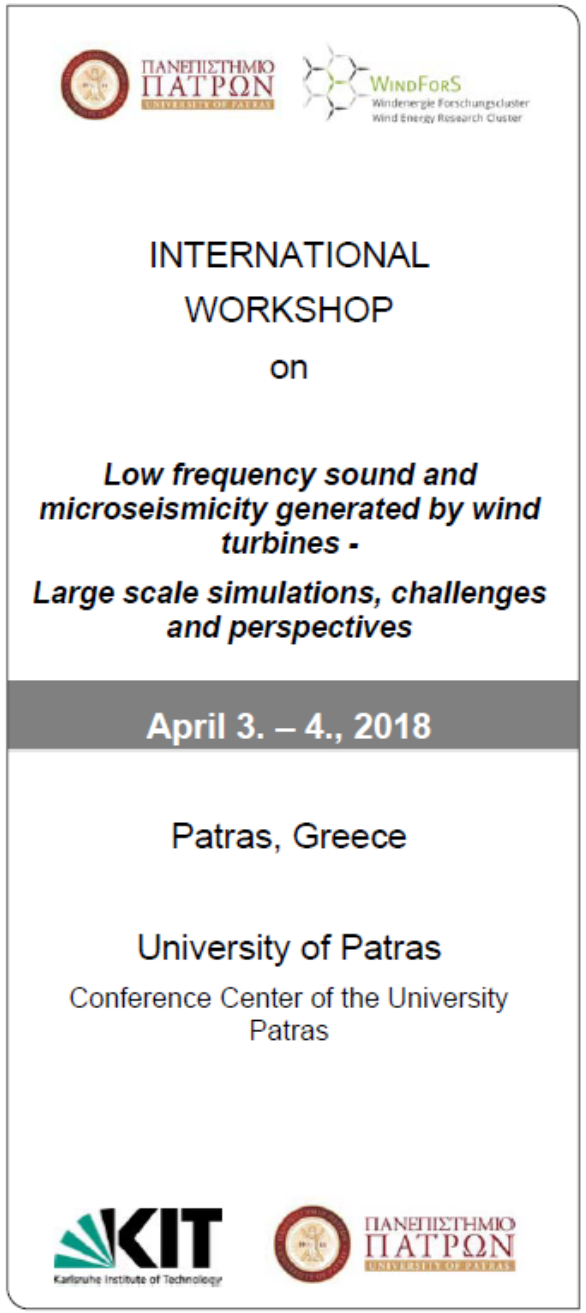
- **The biuld up of common teaching and research projects with double degrees,**
- **Common initiation of research activities with a specific emphasis to a advanced and applied relation (in co-operation with industrial partners)**
- **Organization of summer schools and workshops on the specific area of interest**
- **Visits (6 months) of students and researchers from both sides as well as short visits of Professors for teaching in the partner university**
- **Implementation of e-learning concepts etc.**

DAAD Proposal of the UPatras and KIT

Establishement of a long-term collaboration for improving the studying in the installation and operation of wind turbines- computer aided simulations and modeling

Why this topic?

- *Long cooperation between Prof. Polyzos and Prof. Triantafyllidis in reserach projects in Germany (Tremac, Winsent, Winfors) as well previous international WS in Univ. of Patras 3.-4. April 2018 and 30.05.01.06.2019 (patricipation of the federal german environmental office) with the topic: Low frequency sound and microseismicity generated by wind turbines- Large scale simulations, measurements, challenges and perspectives (this is still a heavely controversial discussed topic among the federal secreteries for economy and environment as well the public)*



Previous Workshops on WT Technology
Organized by
Upatras & KIT

DAAD Proposal of the UPatras and KIT

- *Resent developments in Germany and Greece in the area of the energy supply using wind turbines (offshore and onschore) and this is expected to take place worldwide.*
- *Need of specialized personell for the installation, mentenance, operation, repowering and desmantling of offshore and onschore WTs*
- *Material development for the high cycle loading to provide sufficient resistance to high cycle fatique loading, corrosion and ligthening protection*
- *Environmental protection (infranoice-microseismicity in the operation and noice during the installation), inpact on humans ans animals , Landscaping issues.*
- *Smart grids for the distribution for the consumption and storage as well the charging of batteries or the production of „green hydrogen“ are of vital interest.*

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- *An integarted education in WT Technology requires the co-operation of all the engineering faculties (civil, mechanical, electrical, informatics, material scienses).*
- *Additional disciplines like landscape architecture, medical sciences could also provide further interesting inputs.*
- *Serviceability of the structures, high cycle fatique simulations for the life time reqiuere the simulation of wind/wave structure interaction developments in material science and the environmetral issues require large fields of discratization and special solution techniques*

DAAD Proposal of the UPatras and KIT

First target of the proposal:

Organization of 4 Workshops on WT Technology

DAAD Proposal of the UPatras and KIT

Workshop 1: Numerical simulations for Wind Turbine engineering problems

28/6/2021 – 3/7/2021

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DAAD Proposal of the UPatras and KIT

Workshop 2: Study of structural and foundation systems of Wind Turbines

27/9/2021-2/10/2021

DAAD Proposal of the UPatras and KIT

Workshop 3: Design and maintenance of Wind Turbines

2022

DAAD Proposal of the UPatras and KIT

Workshop 4: Power output predictions, smart grids and environmental issues for Wind Turbines

2022

DAAD Proposal of the UPatras and KIT

Further targets

- *Specialized Knowledge in Wind Engineering with special attention to the WT technology in Greek environment.*
- *Summer Schools on WT Engineering*
- *Courses on WT technology in the curricula of the engineering faculties and establishment of a program for practice with participating companies.*
- *Joint master degree of Wind Engineering at the University of Patras?*

Thank you for your attention!