



## **DLR – DAAD Fellowships**

### **Fellowship No. 519**

- Research Area :** Space
- Research Topic:** **Implementation of an Adaptive-Rate Hybrid ARQ system with channel estimation for optical satellite downlinks**
- DLR Institute:** Institute of Communications and Navigation, DLR Oberpfaffenhofen
- Position:** Doctoral Fellow
- Openings:** 1
- Job Specification:** The Optical Communication Systems Group of the Institute of Communications and Navigation (part of the German Aerospace Center) investigates new technologies to increase the data throughput between Satellites and Ground Stations by employing free-space optical (FSO) links. The Earth's atmosphere heavily influences the statistics of the transmission channel for such laser signals, both in amplitude and phase. Therefore, Automatic Repeat Request (ARQ) and Delay Tolerant Networking (DTN) schemes are suitable to improve the system performance of such links.  
This fellowship shall investigate different adaptive-rate schemes to be used in combination with ARQ and DTN algorithms for FSO communication in downlink scenarios. These schemes shall be developed, taking into consideration the channel characteristics and the practical aspects of the implementation of optical terminals for aeronautical and space systems. The schemes shall be evaluated with simulation and measurements in a representative laboratory setup.
- Required Qualification:** MS Degree in Information Technology / Computer Systems Engineering / Electrical Engineering / Aerospace Engineering / Physics  
Matlab and C programming skills  
Experience with Linux OS

**Advantageous Skills:** Experience in Free-Space Optical Communications and related DTN/ARQ-implementations

**English competence:** See requirements on [www.daad.de/dlr](http://www.daad.de/dlr)  
Fluency in English required

**Earliest Start Date:** Instantly

**Application Deadline:** Until position filled

**Further Information:** <http://www.dlr.de>  
<http://www.daad.de/dlr>