



**Deutsches Zentrum  
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# DAAD

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## DLR – DAAD – Fellowships

Fellowship No. 119

Applicants are invited from (but not limited to): Italy, Spain, France, Austria, Canada, Greece

**Research Area :** Space

**Research Topic:** Optical Frequency Links through the Atmosphere

**DLR Institute:** Institute for Communications and Navigation, Oberpfaffenhofen

**Position:** Postdoctoral Fellow

**Job Specification:** In near future very accurate optical clocks will be available to the scientific community, therefore more accurate time and frequency transfer methods have to be studied and respective systems developed. Using free space optical links is a very promising method for time and frequency transfer between satellites and ground stations. Optical free-space communication is strongly influenced by atmospheric turbulence, which induces signal fades but also distortions of the beam wave-front. Moreover, longitudinal phase fluctuations, the so-called piston, impact on the transmitted frequency stability. It is the goal of this thesis to evaluate the use of the optical carriers to transmit accurate frequency information through free-space, by performing frequency stability measurements and analysing the robustness of different transmission setups. The work includes theoretical investigations, simulations, laboratory work and measurements to study the effects of atmospheric turbulence on optical frequency stability.

**Required Qualification:** Ph.D. in Electrical Engineering / Information Technology, Physics, or similar fields with superior qualification  
Experience with Matlab, electronic measurement systems, and optical laboratory systems

**Advantageous Skills:** English fluent, German at least basic with willingness for improvement

**Language competence:** English: fluency and proven ability to write and present, German at least workable knowledge with willingness of improvement

**Application Deadline:** Until position filled

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