

## Training Opportunity for Lithuanian Trainees

| Reference   | Title   | Duty Station |
|---|---|--------------|
| LT-2018-TEC-MME   | Ground-based optical receiver for the European Data Relay System (EDRS) | ESTEC        |
| <p><b>Overview of the unit's mission:</b></p> <p>The Optoelectronics Section (TEC-MME) of the TEC-M department is dealing with technology developments and project support in the fields of:</p> <ul style="list-style-type: none"> <li>• Detectors from the ultra-violet, visible, near infrared, far and thermal-infrared wavelength.</li> <li>• Lasers, laser amplification and stabilization systems.</li> <li>• Photonics sensors, switches and devices, photonic integrated circuits, frequency converters and filters.</li> <li>• Lidar systems for rendezvous, planetary approach and landing and probing of the atmosphere.</li> <li>• Optical and quantum communication systems.</li> <li>• Cold atom interferometry, atomic clocks and their time and frequency distribution.</li> </ul>   |   |              |
| <p><b>Overview of the field of activity proposed:</b></p> <p>The candidate will develop an optical receiver to be installed in EDRS ground stations. It consists of a differential arm-length interferometer, implemented in free-space optical components that will be tested first in ESA's optical ground station (OGS) in Tenerife. As had been shown in previous tests, the stability of the interferometer is very critical and requires a laser source for monitoring of its alignment. The candidate will evaluate the current design of the interferometer and implement the required optical components to automatically keep the interferometer aligned. The system will be first tested in the ESTEC laboratory together with the detector and data electronic at a data rate of several gigabits per second.</p> <p>The candidate will modify the mechanical parts of the interferometer and assemble the full optical and electronic detection system and set-up a test system to demonstrate its performance, which shall be the signal to noise ratio and the bit error rate. The detection system will then be shipped back to the OGS, where it will serve as the standard testing tool of the optical communication performance of the European Data Relay System.</p> |   |              |
| <p><b>Required education:</b></p> <p>The candidate shall have a technical education with some background in optics, ideally matched with engineering skills.</p>  |   |              |