

## Training Opportunity for Belgian Trainees

Reference	Title	Duty Station
BE-2016-TEC-MME(2)	Optical communication detection system	ESTEC
<p><b><u>Overview of the unit's mission:</u></b></p> <p>The Optoelectronics Section (TEC-MME) of the TEC-M department is dealing with technology developments in the fields of:</p> <ul style="list-style-type: none"> <li>• Detectors from the ultra-violet, via visible, the rear infrared to the far and thermal infrared wavelength.</li> <li>• Lasers, laser amplification and stabilization systems</li> <li>• Photonics sensors and devices, optical integrated switches and filters</li> <li>• Lidar systems for planetary approach and landing and probing of the atmosphere</li> <li>• Laser communication systems</li> <li>• Cold atom interferometry, atomic clocks and their time and frequency distribution</li> </ul>		
<p><b><u>Overview of the field of activity proposed:</u></b></p> <p>The candidate will further develop a free-space differential arm-length interferometer for the demodulation of an optical signal in ESA's optical ground station (OGS) in Tenerife. The signal will be simulated by a modulated laser beam, but will ultimately be coming from laser communication terminals (LCT) on-board the Alphasat, EDRS-A and EDRS-C satellites in geostationary orbit (GEO). The interferometer will be tested in the laboratory together with the detector and data electronic at a data rate of 2.8125 Gbps.</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 ration and the bit error rate. The detection system will eventually be shipped and implemented in the OGS in Tenerife, where it will serve as the standard testing tool of the optical communication performance of the European Data Relay System.</p>		
<p><b><u>Required education:</u></b></p> <p>Master in Physics/Engineering, background on optical or electrical engineering.</p>		