

Training Opportunity for Belgian Trainees

Reference	Title	Duty Station
BE-2016-TEC-MME(1)	Picosecond laser communication	ESTEC
<p><u>Overview of the unit's mission:</u></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"> • Detectors from the ultra-violet, via visible, the rear infrared to the far and thermal infrared wavelength. • Lasers, laser amplification and stabilization systems • Photonics sensors and devices, optical integrated switches and filters • Lidar systems for planetary approach and landing and probing of the atmosphere • Laser communication systems • Cold atom interferometry, atomic clocks and their time and frequency distribution 		
<p><u>Overview of the field of activity proposed:</u></p> <p>Work on the implementation of a picosecond laser communications terminal for simulating deep-space laser communication.</p> <p>Currently only nanosecond lasers are evaluated for deep space laser communications. With the availability of fast SPAD detector arrays, high peak power of picosecond laser can be used to decrease average power requirements and increase signal to noise ratio in pulse-position modulated laser links.</p> <p>Furthermore it shall be explored, if an SPAD array can be used to do acquisition/tracking as well as communication. This will reduce the complexity from two detectors to one on the receiver side of the terminal.</p>		
<p><u>Required education:</u></p> <p>Master in Physics / Engineering, background on electrical engineering and FPGA programming mandatory.</p>		