Dutch Metrology Institute

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About VSL

VSL is part of First Dutch Innovations and has over a hundred passionate employees. We develop and manage national measurement standards on behalf of the Dutch government. We ensure that these are among the best in the world and are internationally accepted. We also provide customer calibrations, customized projects, reference materials, interlaboratory comparisons and training.

As a national metrology institute (NMI), we make the measurement results of companies, laboratories and institutions directly traceable to international standards. VSL thus makes an important contribution to the reliability, quality and innovation of products and processes in business and society.

You will work within the Electricity group. Here we provide extensive measuring expertise to manufacturers of measuring equipment, energy companies, universities and (accredited) calibration laboratories. We also work on various research projects in a European context, including the field of smart grids.

Electrical Energy

A balance between production and consumption of electrical energy is crucial for the stability of high-voltage and medium-voltage networks. This balance is monitored with voltage and current measurements at different locations in the network. The phase differences between the various voltage measurements are an important measure of the stability of the network. Because the phase differences are measured between locations that are geographically far apart, the phase of the mains voltage at each location is measured with reference to the absolute time. This is done with so-called phasor measurement units (PMUs).

In the context of this project, we are looking for a student working with us to contribute to the realization of an accurate calibration set-up for phasor measurement units in which the phase of a signal of approximately 50 Hz is compared with an absolute time scale, UTC(VSL). The major challenges are in:

- accurate measurement of the phase of a low-frequency sinusoidal signal with respect to a one-pulse-per-second reference time signal.
- generating a very stable sinusoidal signal at 50 Hz and other frequencies in the low-frequency range which is locked to a 10 MHz reference signal.

The graduation project will take place in Delft at the VSL premises. An internship fee of 475 euro per month gross will be made available.

For more information, please contact Helko van den Brom (hvdbrom@vsl.nl).