

Opportunity for a Secondment in the BIPM Electricity Department

Establishing a calculable capacitor at the BIPM

The BIPM and the National Metrology Institute of Australia, NMIA, are collaborating on the fabrication of two new calculable capacitors, one for each institute. The objectives of this work are to develop a primary impedance standard and to determine the von Klitzing constant, R_K , with an uncertainty of the order of 1 part in 10^8 . The latter result will be of importance for the future *mise en pratique* of the electrical units after the expected redefinition of the ampere.

The high-precision chain linking the capacitance of 1 pF and 10 pF standards to the BIPM quantized Hall resistance standard has been in operation for several years. Recently a bridge to link the calculable capacitance to 1 pF has been added. All mechanical and optical components of the calculable capacitor will be available in early 2010, and the BIPM capacitor will be assembled before mid 2010.

We now seek a physicist or engineer with experience in calculable capacitors and/or ac coaxial bridges to participate in the BIPM/NMIA calculable capacitor project.

The tasks would be to contribute to the characterization of the instrument after its assembly and to the optimization of the capacitance measurements. If time allows, the successful candidate would participate in our first determinations of the von Klitzing constant.

This secondment should begin around September 2010 and the duration would ideally be six months.

The practical arrangements for secondments are that the home institute continues to pay the secondee's salary and related costs for the secondment period. However, the BIPM adds an allowance, paid in Euros, so that the selected secondee can cover his/her living costs in Paris. Further details can be obtained from the Director of the BIPM Electricity Department, Dr. M. Stock (mstock@bipm.org).