

EUROMET PROJECT

/FINAL REPORT

1 Ref No.: A 90/207	2 Field: length
3 Type of collaboration: Workshop	
4 Partners: DE, GB, CH, DK, FR, IT, SE, ES, FI	
5 Subject: Workshop On Optical Frequency/Wavelength Standards	
6 Progress: <p>The Euromet workshop on optical frequency/wavelength standards took place on February 20 and 21, 1990 at the PTB in Braunschweig, West-Germany. It was organized by Drs. J. Helmcke, PTB and P. Gill, NPL. In total fourteen scientists of nine countries participated. J.-M. Chartier was invited as a guest of the BIPM. The scientific program and a list of participants are enclosed. The aim of the workshop was to discuss European activities in the field of frequency stabilized lasers, to increase the cooperation between Euromet members, and possibly to initiate collaborations. The program covered the activities in research and development of frequency stabilized lasers of a wide range of uncertainty levels including optical frequency measurements. Laboratory visits were also arranged.</p> <p>The meeting was opened by Prof. D. Kind (president of the PTB) who welcomed all participants and presented background information about Euromet. After the following review talks on I₂-stabilized He-Ne lasers (Chartier, guest of the BIPM) and new trends in optical frequency/wavelength standards (Gill and Helmcke) the participants introduced their present and planned activities in the field. The activities of several, in particular of the smaller laboratories concentrate on the development of I₂-stabilized lasers as their national realization of the Metre. Most laboratories are strongly interested in the development and wavelength determination of He-Ne lasers operating in the green region at $\lambda = 543$ nm and stabilized either to the gain profile or to absorption lines of molecular iodine. An Euromet project concerning the development and wavelength measurement of I₂-stabilized lasers will be proposed by the PTB. It is intended to provide a wavelength value to the CCDM for international recommendation of the realization of the Metre by an additional laser wavelength in a different spectral range.</p> <p>It was agreed that lasers of new technologies (diode lasers, diode laser pumped solid-state lasers) are very promising for the development of future wavelength standards and as sources of intermediate frequencies for optical frequency measurements. Laser diodes are already being investigated for applications in wavelength standards by several Euromet laboratories (DFM, INM, NPL, PTB). There is a great interest in the development of wavelength standards based on laser diodes at all levels of uncertainty. In particular, it was noted that a Euromet - Time proposal for the development of</p> <p style="text-align: right;">Be continued on next page</p>	
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9 Coordinator's signature: <i>J. Helmcke</i>	10 Date: 21.03.90

*Notes for the completion of the form overleaf