

**BIPM workshop on
*Development of advanced time and frequency transfer techniques***

Programme

Tuesday 28 June

09:00-09:30 Registration

09:30-09:45 **Welcome to participants** Michael Kühne, BIPM
Opening remarks Philip Tuckey, LNE-SYRTE and Lennart Robertsson,
BIPM

Session on requirements on time and frequency transfer techniques

09:45-10:10 **Requirements on time and frequency transfer for frequency standard comparisons and for a redefinition of the second** Fritz Riehle, PTB

10:10-10:35 **Requirements on time and frequency transfer for time scale realisation and distribution** Demetrios Matsakis, USNO

10:35-11:00 Coffee break

11:00-11:25 **Requirements on time and frequency transfer for other applications**
Gérard Petit, BIPM

11:25-11:40 Discussion

Sessions on the status and perspectives of time and frequency transfer techniques

GNSS-based methods

11:40-12:05 **Time transfer with IPPP** Jérôme Delporte, CNES

12:05-12:30 **GNSS time and frequency transfer: state of the art and possible evolution** Pascale Defraigne, ORB

12:30-13:30 Lunch

Two-way microwave methods

13:30-13:55 **Development of advanced time and frequency transfer techniques in NICT** Miho Fujieda, NICT

13:55-14:20 **Recent developments and results on the time and frequency transfer using the TWSTFT technique at LNE-SYRTE** Joseph Achkar, LNE-SYRTE

14:20-14:45 **Time transfer with the ACES microwave link** Dirk Piester, PTB

14:45-15:10 **GEOSTARS – a proposal for worldwide high stability clock comparisons** Noël Dimarcq, LNE-SYRTE

15:10-15:25 Discussion

15:25-15:45 Coffee break

Optical fibre links

15:45-16:10 **Measuring the frequency of a Sr optical lattice clock using a 120-km coherent optical transfer** Feng-Lei Hong, NMIJ

16:10-16:35 **Coherent optical carrier transfer via fiber link: remote distribution of optical clock signals** Andrew Ludlow, NIST

16:35-17:00 **Transmitting ultra-stable optical signals over public telecommunication networks** Giorgio Santarelli, LNE-SYRTE

17:15-18:15 **WG ATFT Meeting**

18:30-21:30 **Workshop dinner. Bus departs from BIPM at 18:30.**

Wednesday 29 June

Optical fibre links (cont.)

09:00-09:25 **Transferring optical frequency combs over fibre** Giuseppe Marra, NPL

Free-space optical links

09:25-09:50 **T2L2** Etienne Samain, OCA

09:50-10:15 **Coherent optical links for free-space time and frequency transfer**
Peter Wolf, LNE-SYRTE

10:15-10:40 **Advanced 2-way concepts via satellite transponders** Wolfgang Schäfer,
TimeTech

10:40-11:10 Coffee break

Methods from other fields

11:10-11:40 **On the feasibility of using space-geodetic techniques for advanced time and frequency transfer** Thomas Hobiger, NICT

Transportable clocks

11:40-12:05 **Transportable clocks for remote T&F comparisons** Patrick Gill, NPL

12:05-12:35 Discussion

12:35-14:00 Lunch