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, NMJJ
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** Giusseppe 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