

EFTS 2013

European Frequency and Time Seminar



Venue

Besançon is the capital and principal city of the Franche-Comté area in the east of France. Located close to the France-Swiss border, it is the capital of time mechanisms and microtechnics.

The event will be held at The National Engineering Institute in Mechanics and Microtechnics, ENSMM, 26 Chemin de l'Épitaphe, F-25030 Besançon cedex – FRANCE

Several bus lines link the station and downtown city

Coming by plane:

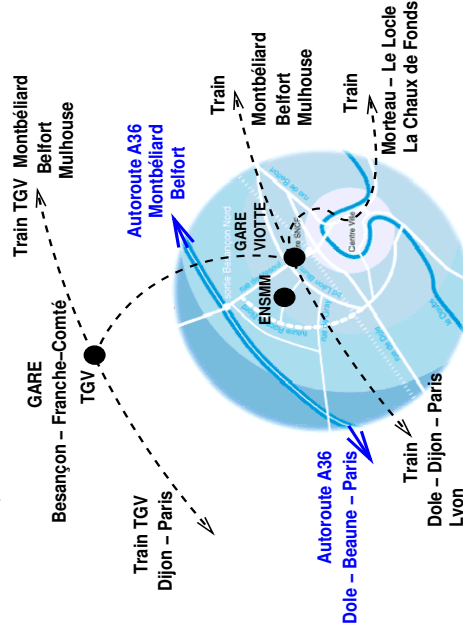
- The four airports closest to Besançon are :
- Euroairport Basel-Mulhouse (then about 2h drive)
 - Geneva airport (then about 2h30 drive)
 - Lyon Saint Exupéry airport (then drive about 2h30 or take the train to Lyon then to Besançon)
 - Paris Charles de Gaulle airport (then take the train to Paris – Gare de Lyon (about 1 h), then the high speed train (TGV) to Besançon (2h30)).

Coming by train :

Besançon can be accessed by train from Paris ("Gare de Lyon") – Besançon Viotte / Besançon-Franche-Comté-TGV 2h30 to 3h – 9 high-speed trains per day
 Lyon – Besançon Viotte: 3h
 Strasbourg – Besançon Viotte: 2h30 to 3h – 5 high-speed trains per day

Coming by car from:

Basel-Mulhouse airport: about 2h
 Lyon Saint Exupéry airport: about 2h30
 Geneva airport: about 2h30



Price policy

Regular rate	1200 €	Your Company plans to send several attendees? Contact us for lower rate
Academy & Gov. labs *	800 €	We reward the help of European institutions
Ph.D. students *	400 €	True full-time students only
CNRS	free	except travel

(*) Applies to EU/CH. Other Countries, please contact us.

Thanks to CNRS sponsorship, special conditions apply to CNRS employees

All prices include classes, labs, visits, learning material, lunches, coffee breaks, events, and social dinner.

Accommodation, breakfast, and regular dinners are not included (CNRS: included). Nearby low-rate lodging will be proposed, and regular hotels as well.

A limited number of places will be available, determined by hands-on lab sessions.

Attendees in excess can be allowed to the lectures only, at reduced rate.

REGISTRATION

frequency-time-seminar@femto-st.fr

<http://events.femto-st.fr/EFTS>

Aryanne Hicks (+33)(0)3 81 40 28 30

FEMTO-ST / DTF / ENSMM

26, Chemin de l'Épitaphe

F-25030 BESANÇON cedex

August 26–30, 2013

Besançon, France



FEMTO-ST Institute

Frequency & Time Department



<http://events.femto-st.fr/EFTS>



Ville de Besançon



UNIVERSITÉ DE FRANCHE-COMTÉ

Franche-Comté
Conseil régional



The Frequency and Time Department of FEMTO-ST and the LABEX FIRSST-TF network are pleased to announce the
2013 European Frequency and Time Seminar (EFTS)

The EFTS is intended to provide education and training, including laboratory practice in a full-week seminar, and targets the broadest audience: Engineers, Ph.D. students, post-docs, young scientists, newcomers, etc.

This seminar is original in the following:

- Broad spectrum of topics related to time and frequency
- Broad target audience, yet keeping high level education
- Balance between academic and applied issues
- Laboratory sessions (not only demos, the attendees are expected to practice on a wide range of instruments made available)

Scientific committee

Anne Amy-Klein, LP, Villelaineuse, France
Andreas Bauch, PTB, Braunschweig, Germany
Elio Bava, INRIM, Torino, Italy
Jean-Paul Berthet, CNRS/MFCT, Meudon, France
Emmanuel Bigler, FEMTO-ST Institute, Besançon, France
Pascal Defraigne, ROB, Brussels, Belgium
Noel Dimarco, SYRTE, Paris, France
Patrick Gill, NPL, Teddington, United Kingdom
Gaetano Milletti, LTF / University of Neuchâtel, Switzerland
Valerie Morazzani, LNE, Paris, France
Enrico Rubiola, FEMTO-ST Institute, Besançon, France (chairman)
Francois Vermotte, Observatory of Besançon, France

Program

Lectures and Seminars

- Introduction to TF - Basic concepts and vocabulary (quality, certification, traceability etc), and technical issues (oscillators, frequency standards, accuracy, stability, phase noise, jitter, physical environment, etc.).
- Measurement methods and experimental techniques - Spectra (phase noise and L(f), amplitude noise), variances, frequency measurement and comparison.
- Atomic clocks - Physics, traditional clocks (atomic beam, vapor cell, and maser), cold atoms, optical clocks, small-size clocks.
- Oscillators - RF/microwave, cavity-stabilized lasers, optical frequency combs.
- Timing and applications - Time scales, navigation, frequency transfer and synchronization.
- Physics, applications, and trends.

Hands-on Laboratory Courses

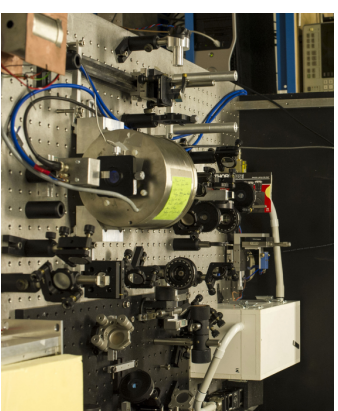


Laboratory sessions

Frequency stability and AM/PM noise, resonators and oscillators, timing and synchronization, vapor cell clocks, etc. Every day, the attendees will do real experiments and measurements.

Social Events

- Mon. Aug. 26th Visit of Besançon's Observatory
- Tue. Aug. 27th Visit of Besançon's Time Museum (downtown city)
- Wed. Aug. 28th Night session at the Observatory's telescopes
- Thu. Aug. 29th Social dinner
- Fri. Aug. 30th Femto-ST Lab Tour



Classroom work

Attendees work on paper, on spectra, variances, and uncertainty.

Additional week-end activities

Sat. Aug. 31 Walking tour, photo tour, visit Besançon & surroundings

