

PHOTONIQUE ET MESURES DE PRÉCISION ■ DU COMPOSANT AU SYSTÈME

11 OCTOBRE 2016

CNRS - Campus Gérard-Mégie - Auditorium Marie-Curie

Une rencontre organisée par le CNRS en partenariat avec le Labex FIRST-TF



Workshop « Photonique & Mesures de précision »

11 oct. 2016, CNRS, Paris

INTRODUCTION

Noël DIMARCQ

Délégué scientifique Photonique CNRS/INP

Directeur de FIRST-TF

noel.dimarcq@cnrs-dir.fr

Context

Science ↔ Measurement

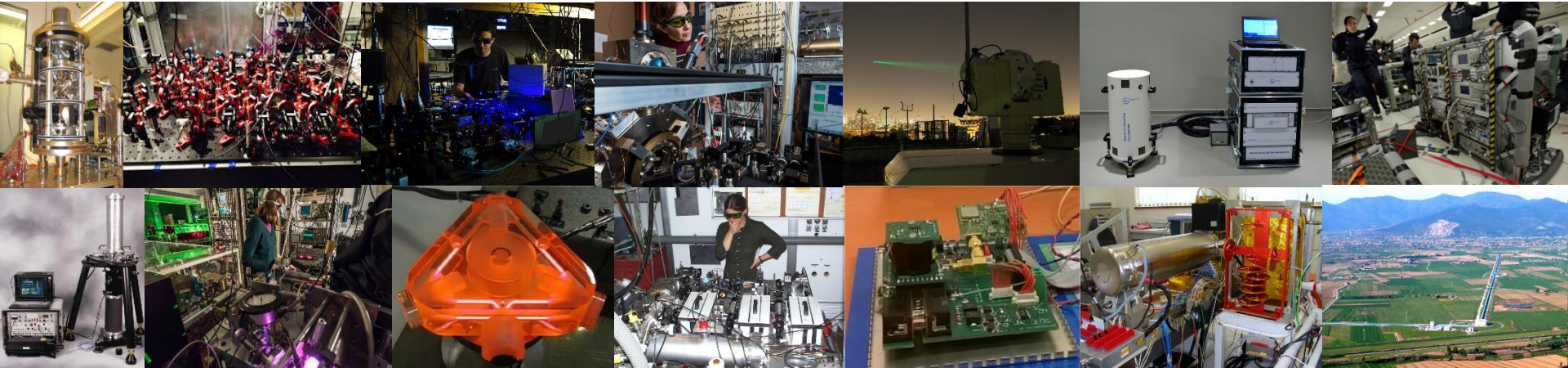
Confidence in the measurement ↔ Precision / Uncertainty

Model utilization ↔ Model validation

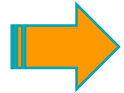
Fundamental research ↔ Societal application

Photonics

- ➔ Basis of the measurement and/or key components & sub-systems
- ➔ Important expertise in France (academy, industry)
- ➔ Large projects (on ground, in space) + programmes on sensing & metrology (*Flagship Quant. Technologies*)



Objectives of the workshop



Gather various communities
(*>110 registrations*)

- Academic institutes (> 20 labs)
- Industry (18 companies)
- Stakeholders
- Networks (Grifon, FIRST-TF, GDR, GIFAS, ...)
- Valorisation units (CNRS, FIST, SATT, ...)

on a common subject of interest:

Photonics & (for / in) precision measurements

- ➔ *From the designer to the end user*
- ➔ *From the foundations to the applications (TRL ↗)*
- ➔ *From the component to the system*

Objectives of the workshop

 Gather various communities

 State of the art, existing / prospective concepts

Scientific and technological aspects:

- atom / light interferometry
- fundamental noises
- laser sources
- fibres
- components & optical functions integration
- ...

Not exhaustive !

Objectives of the workshop

 **Gather various communities**

 **State of the art, existing / prospective concepts**

 **Trigger questions, comments ... and collaborations**

- **Discussions during the workshop, to continue after**
- **Future collaborations to explore new concepts / solutions, to remove technological barriers**

FIRST-TF

 A National cluster in Time & Frequency with the following objectives:
(funding from the French Programme Investissements d'Avenir)

- Create an **expert network** gathering the main actors in the field of time and frequency metrology (laboratories, industry, technical centres)
- Promote new **collaborative projects** within a wide spectrum of applications in T/F metrology and at its interfaces
- Increase the **interactions between laboratories and industry**, and especially improve the transfer of technology and know-how.
- Extend **education and training** offers on T/F metrology, with innovative teaching tools and possible extensions to high precision space-time measurements and their applications

FIRST-TF actors

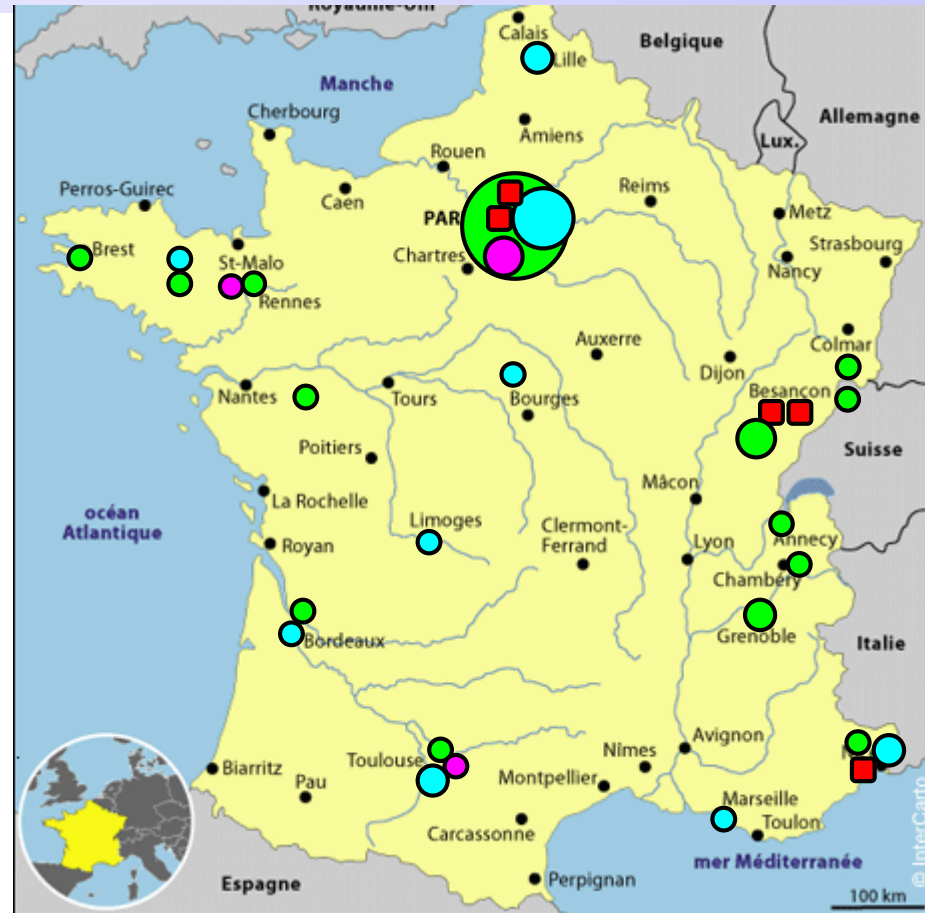
Founder (1st circle) laboratories

- SYRTE (Paris), Coord.
 - LPL (Villetaneuse),
 - FEMTO-ST (Besançon),
 - UTINAM (Besançon),
 - GEOAZUR (Nice)
- ~ 100 perm. + 60 Ph-D/post-docs

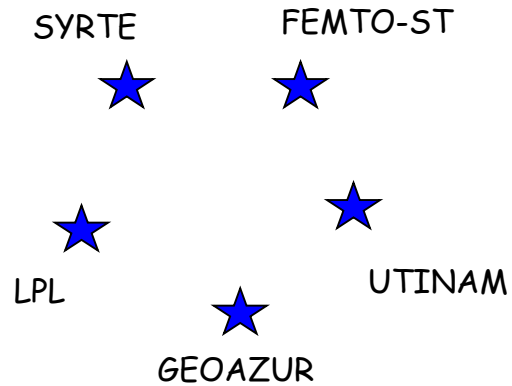
2nd circle partners

- 19 laboratories
- (~ 100 perm. + 50 Ph-D/post-docs)
- 30 industrial companies
- (~ 150-200 engineers/technicians)
- Space / defense / aeronautics agencies (CNES, DGA, ONERA, ...), BIPM + non-profit organizations, ...

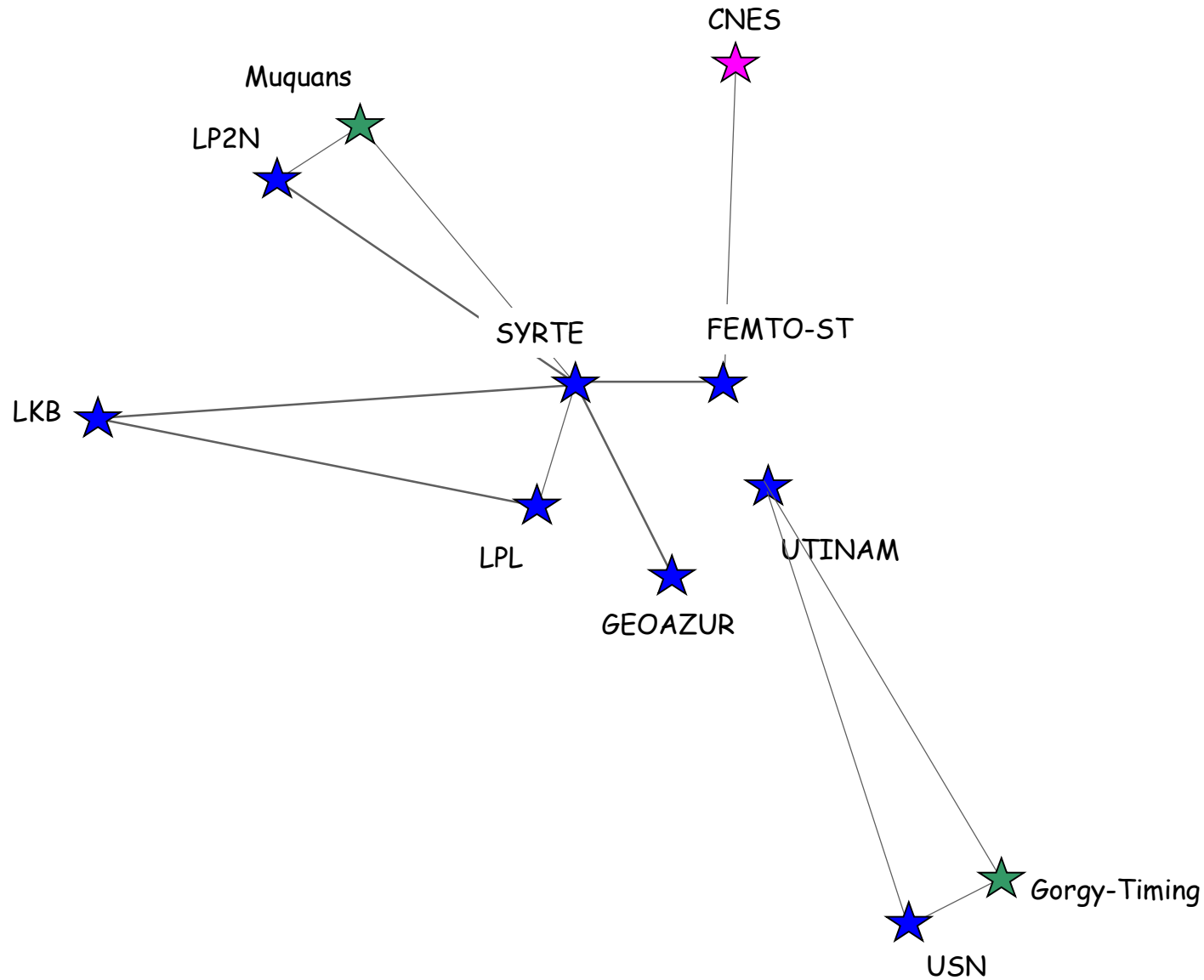
+ Collaborations with European academic institutes, NMI, companies



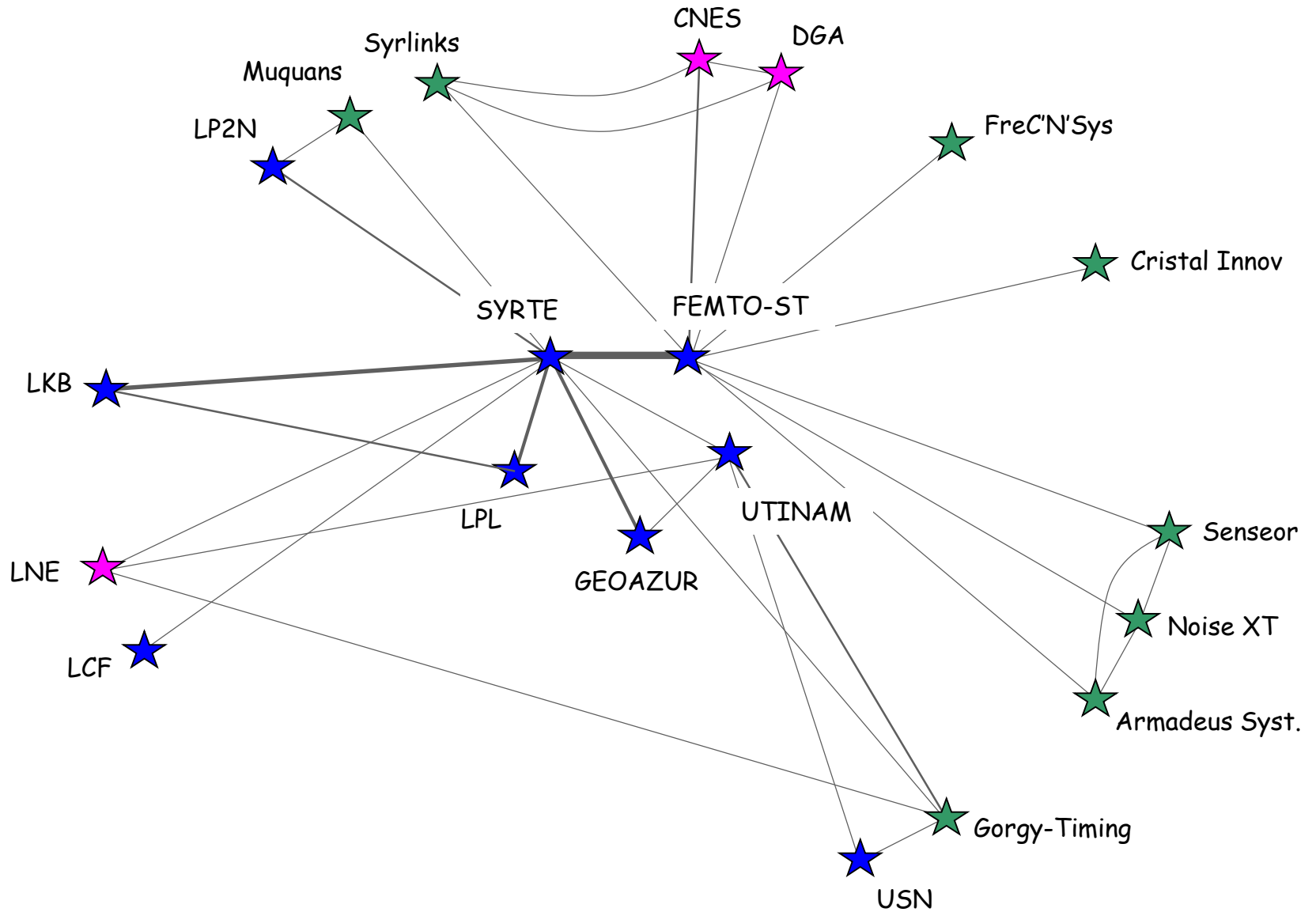
FIRST-TF: the founders



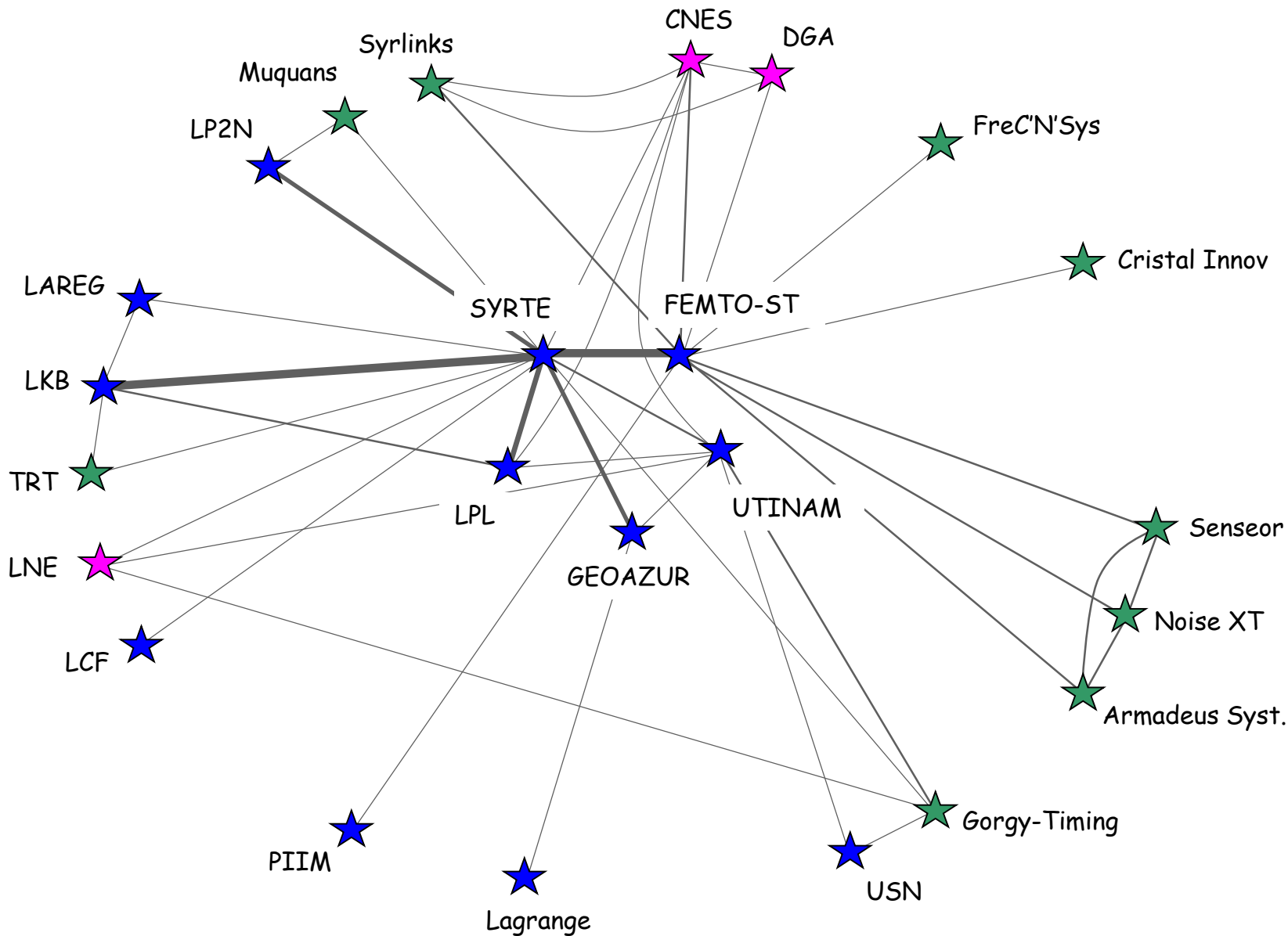
FIRST-TF supported projects: 2012



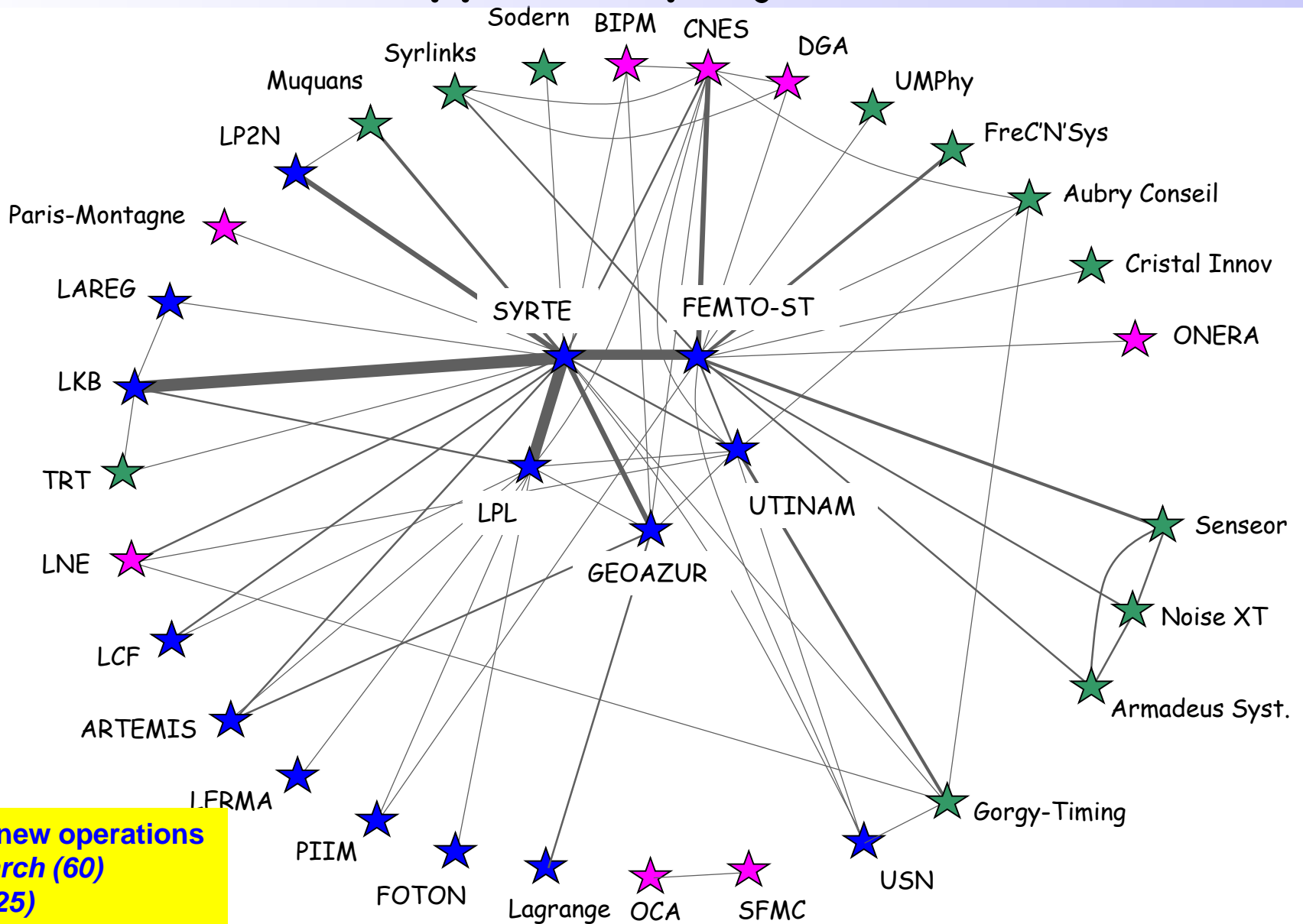
FIRST-TF supported projects: 2012-2013



FIRST-TF supported projects: 2012-2014



FIRST-TF supported projects: 2012-2016



Expected outputs

 News ideas, new relations, new collaborations

 Identify aspects to study more in details + possible proposals to next AOs (ANR, DGA, CNES, CNRS/MI, FIRST-TF, etc, etc.)

 Any additional comment, question, suggestion ?

Contact persons at CNRS in charge of photonics:

@ INP : Noël Dimarcq (noel.dimarcq@cnrs-dir.fr)

@ INSIS : Isabelle Sagnes (isabelle.sagnes@cnrs-dir.fr)

 Do not forget to fill the inquiry form and give it back to the entrance desk before leaving

Special thanks



Speakers, Poster presenters (25), Participants (> 110)

Scientific Organizing Committee:

Laurent Bigot (PhLAM), Jean-Marc Blondy (XLIM), Patrick Georges (LCF),
Isabelle Sagnes (C2N, INSIS), Giorgio Santarelli (LP2N), Noël Dimarcq (SYRTE, CNRS)

Local Organizing Committee:

@ INP : Yamina Bendjebba, Lorenzo Brighigni, Julie Carimalo, Marine Charlet-Lambert,
Bettina Saunière, Marie Signoret

@ INSIS : Katia Barral, Muriel Ilous, Chloé Rimalho, Nadia Robin

@ SYRTE : Christel Comte, Francia Decostier, Marine Pailler