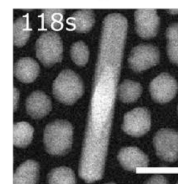
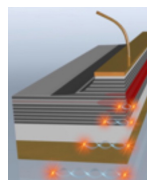
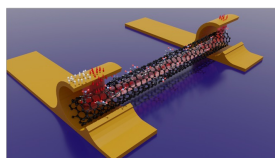
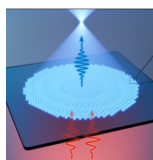
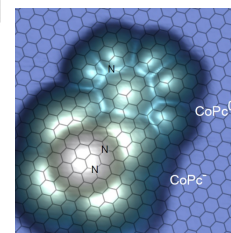
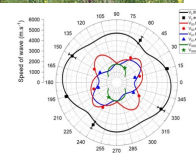
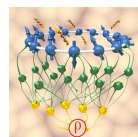
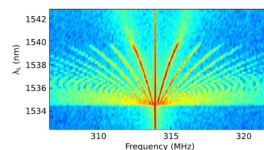
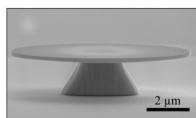
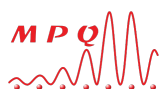


20ème Anniversaire de MPQ (UMR 7162), APC et MSC

Cristiano Ciuti



20ème Anniversaire de APC, MPQ, MSC



<https://mpq.u-paris.fr/>



Préhistoire et genèse de MPQ

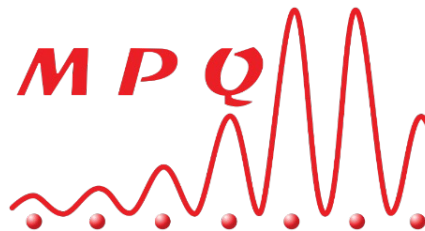
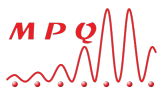
- Automne 2000: Genèse du pôle MPQ
 - Février 2001: Expertise et feu vert du Ministère
 - Mai 2001: Premiers recrutements MPQ à Paris (2001-2004: 13 postes)
 - Été 2001: Attribution d'un Plan Pluri Formation MPQ
 - 1er Janvier 2002: Fédération de Recherche CNRS MPQ (FR2437)
 - 2002-2003: Démarrage de la filière MPQ du DEA CPM
-
- **1er Janvier 2005: Naissance de l'UMR MPQ (UMR 7162)**
 - **Octobre 2006 : Déménagement dans le bâtiment Condorcet**

V. Berger



Luc
Valentin

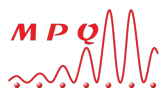
A. Fert



Le chantier Condorcet en mars 2005



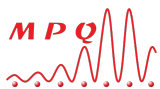
@ Alain Sacuto



Le chantier Condorcet en mars 2005



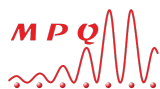
@ Alain Sacuto



Le chantier Condorcet en mars 2005



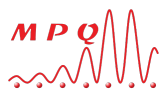
Alain Sacuto
Pilier de MPQ
et futur directeur de l'UFR de physique



Maximilien Cazayous
Pilier de MPQ et futur Doyen



Le chantier Condorcet en nocturne



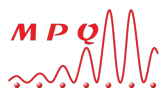
@ Samuel Guibal



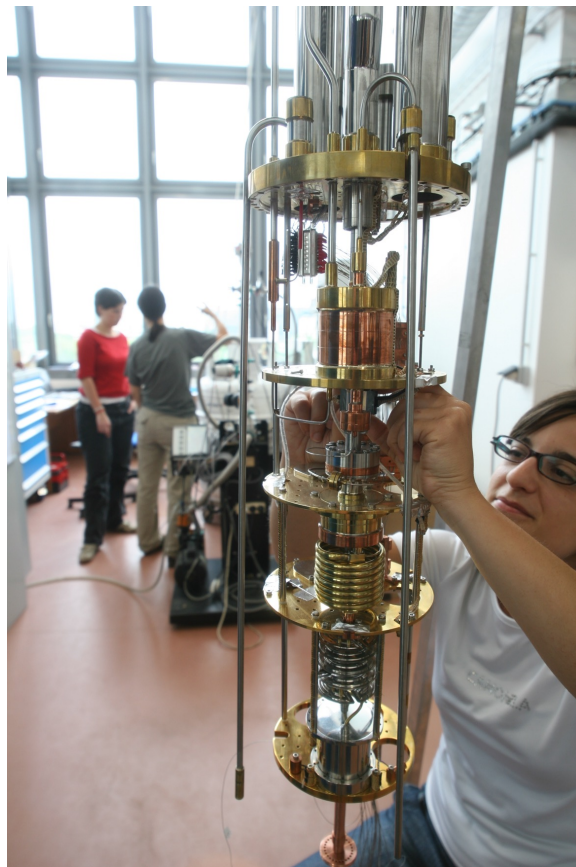
Le chantier Condorcet en nocturne



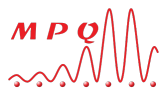
@ Samuel Guibal



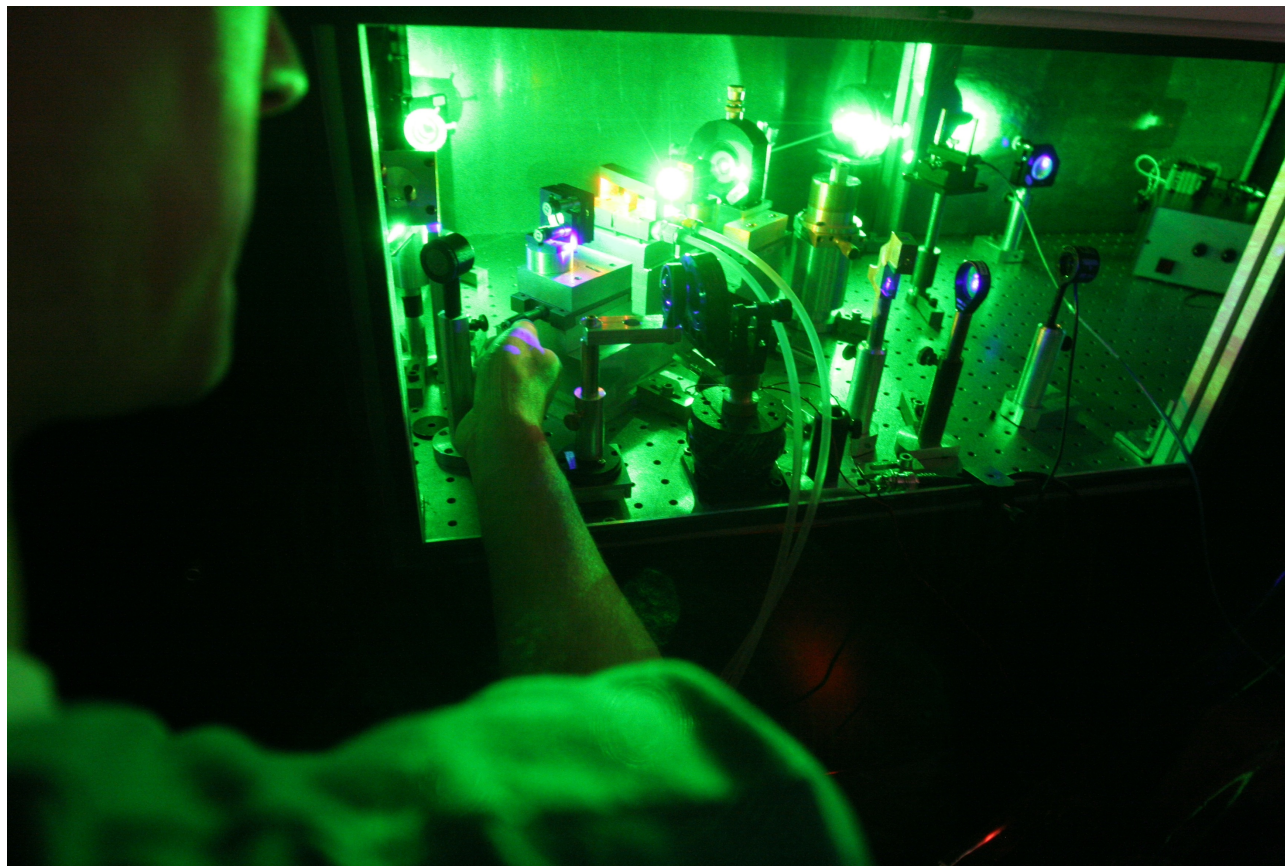
Installation des laboratoires ...



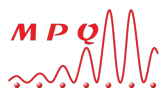
@ Samuel Guibal



Installation des laboratoires ...



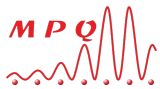
@ Samuel Guibal



La terrasse du 7ème étage



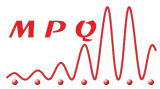
@ Samuel Guibal



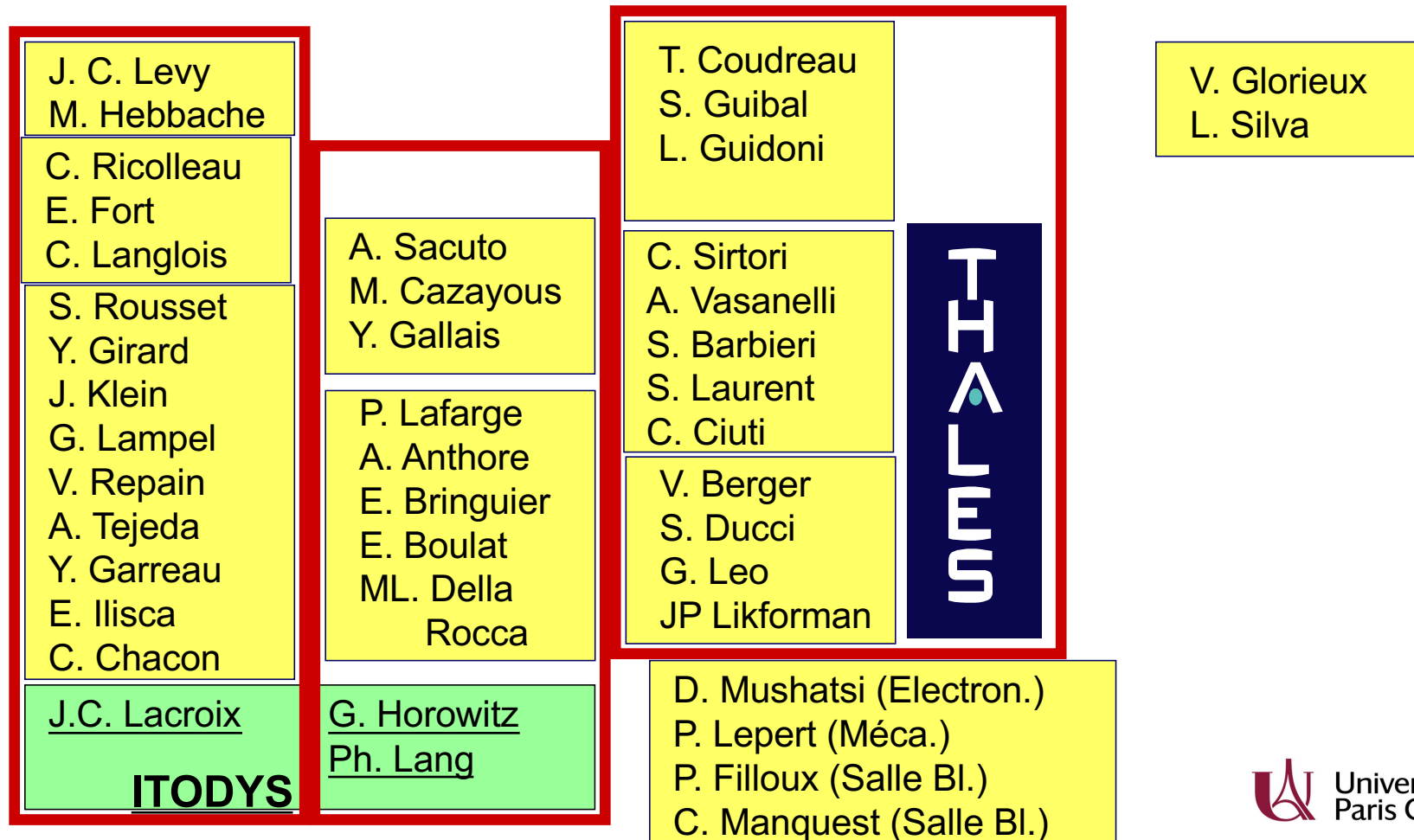
Promenade à coté du Bâtiment Condorcet



@ Samuel Guibal

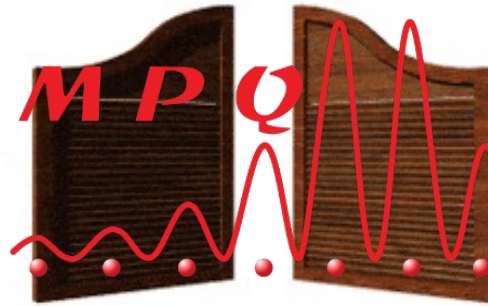
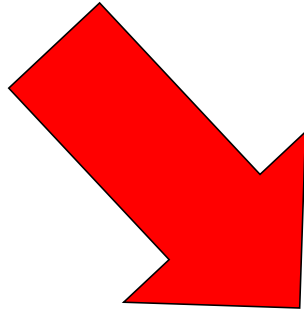


Organigramme en 2006....

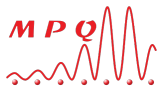
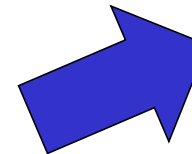


Recrutements et mobilité académique

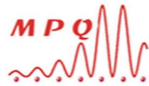
Recrutements



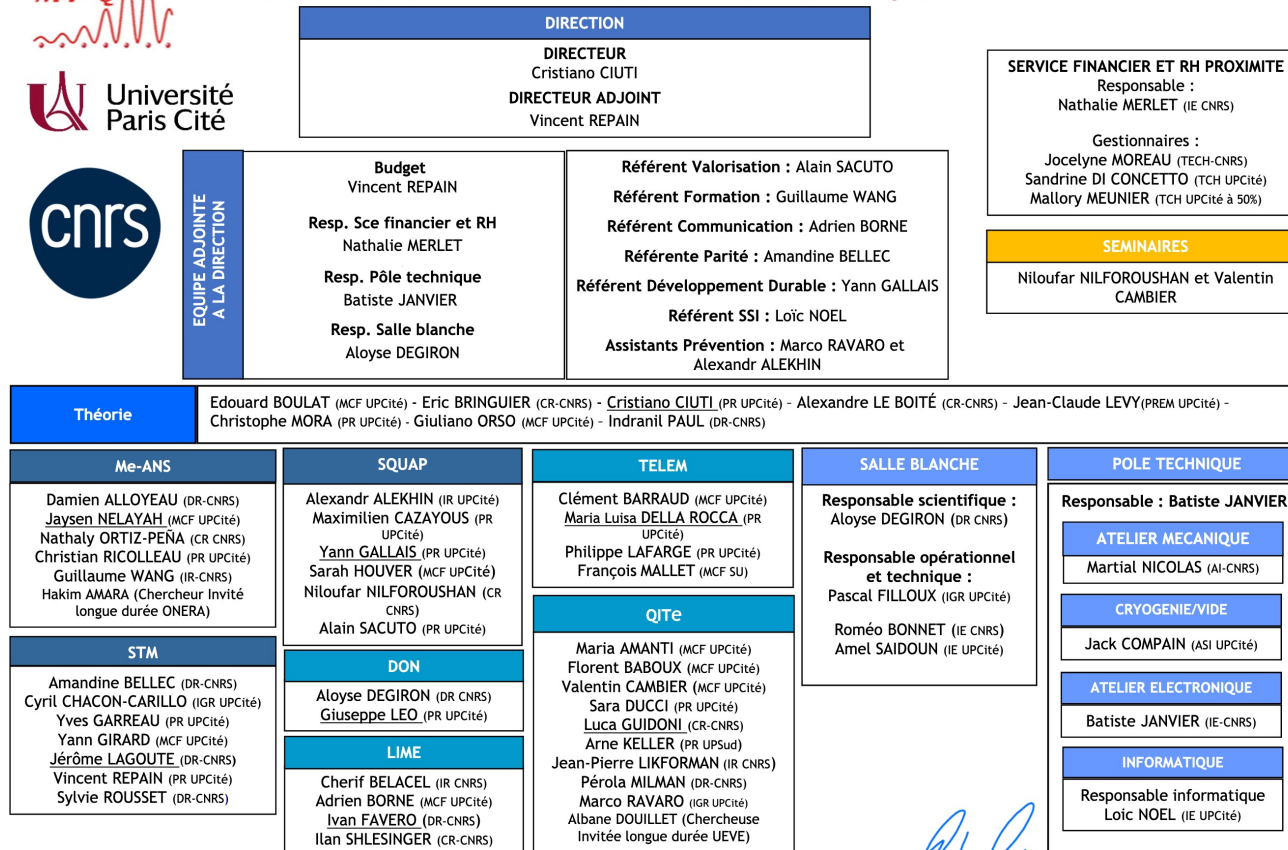
Départs



Organigramme d'aujourd'hui

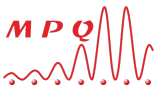


Laboratoire Matériaux et Phénomènes Quantiques – UMR 7162

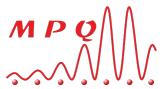
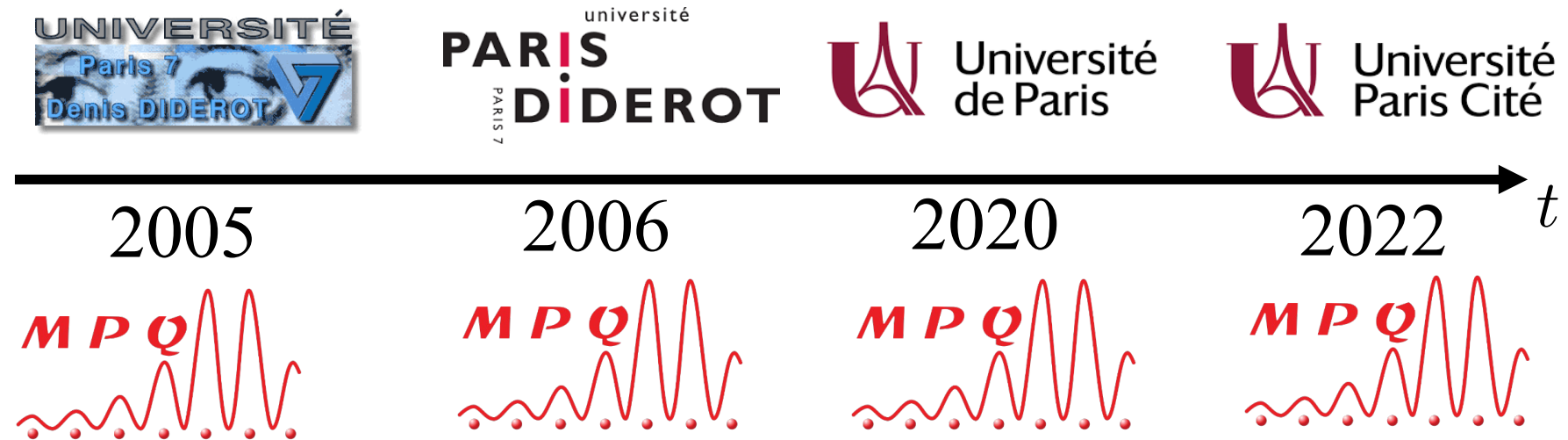


+ 21 post-docs et 40 doctorants et 36 stagiaires

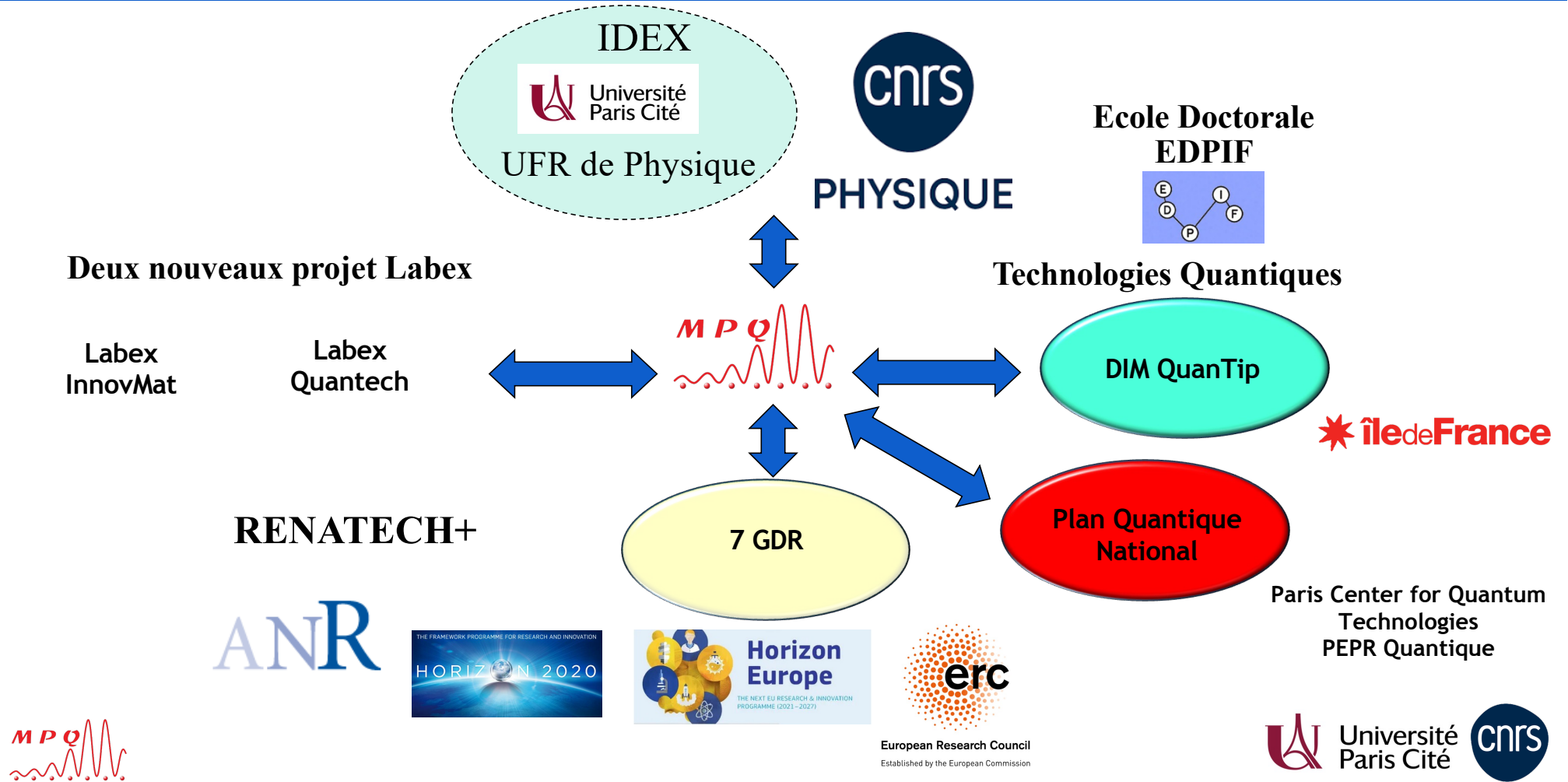
UMR 7162 - 16/05/2025



Dynamique temporelle des affiliations



Le paysage académique d'aujourd'hui



Directeurs/rices



Vincent Berger

2005-2006

↓
Directeur
UFR de Physique

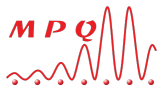
↓
Président
U. Paris Diderot

↓
Conseiller de F. Hollande

↓
Directeur de la Recherche CEA

↓
Maître à la Cour des Comptes

↓
Commissaire CEA



Sylvie Rousset

2006-2012

↓
VP Recherche
Université Paris
Diderot

↓
Directrice des données ouvertes
de la recherche
(Siège du CNRS)



Carlo Sirtori

2012-2018

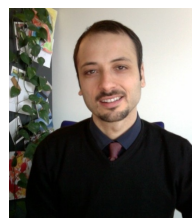
↓
Chaire Thales-ENS

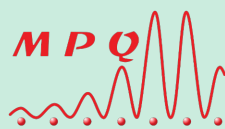


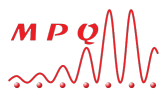
Cristiano Ciuti

2018 -

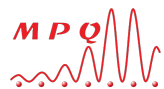
Mon parcours et la flèche inexorable du temps.....



Laurea (1997)	Doctorat (2001)	Postdoc (2001-03)	MdC (2003-06)	Professeur (since 2006)
 	 	 	 	  
SNS, Pisa	EPFL, Lausanne	UCSD, USA	ENS, Paris	



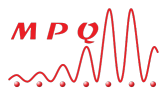
Journées MPQ 2009 (Le Croisic, Bretagne)



Journée MPQ 2011 (Firenze, Italie)



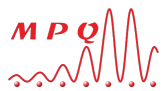
Journée MPQ 2013 (Ile d'Oléron)



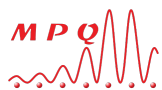
Journées MPQ 2015 (Bellême)



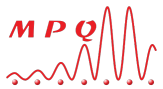
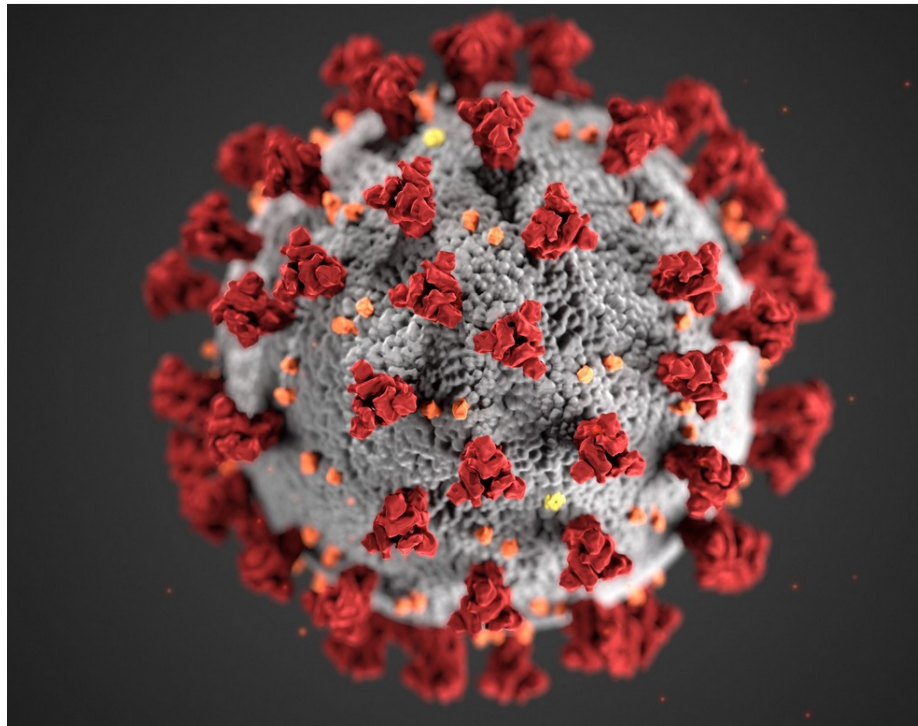
Journées MPQ 2017 (Amboise)



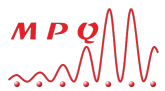
Journées MPQ 2019 (Sainte-Montaine en Sologne)



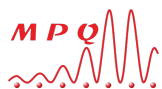
Covid ...



Journées MPQ 2022: Merville Franceville

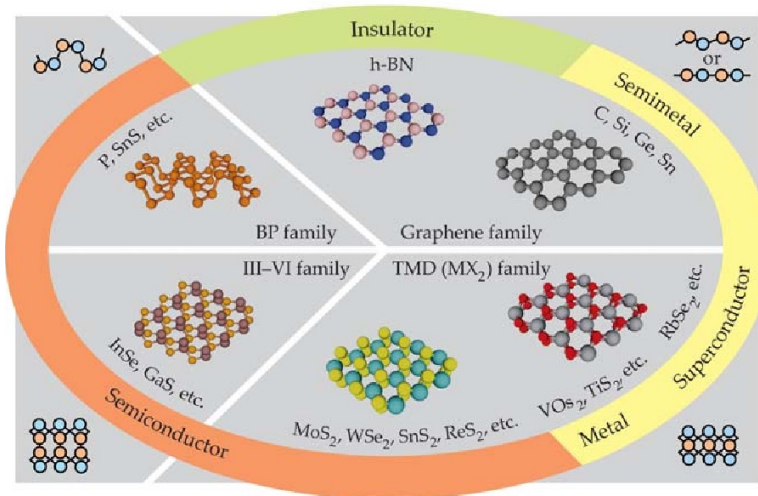


Journées MPQ 2024 (Hauts de Bruyeres)

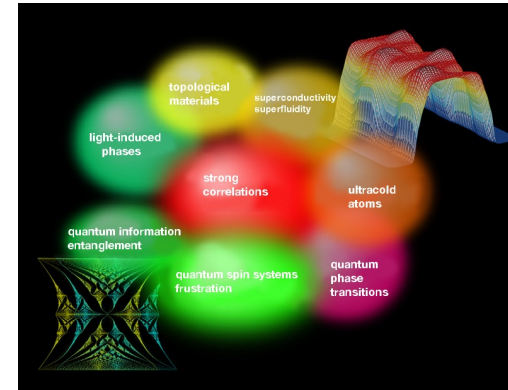


Le context: émergence de nouveaux matériaux quantiques

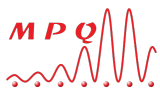
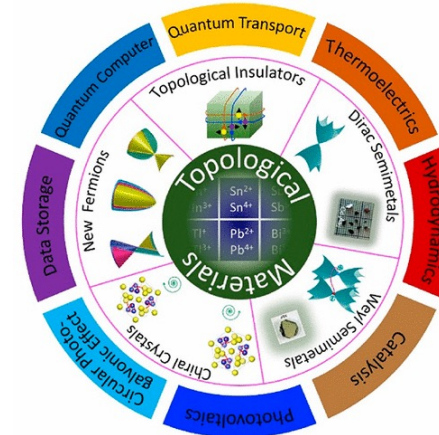
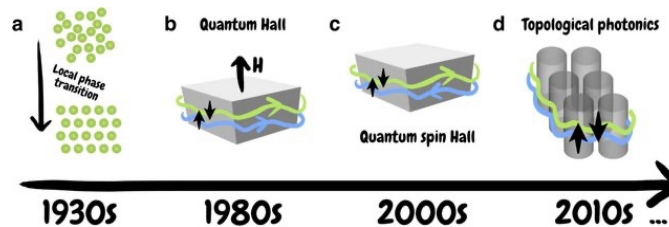
2D materials



Topological materials



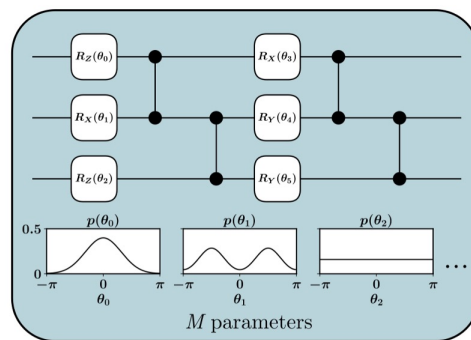
Metamaterials



Le contexte: la 2^{ème} révolution quantique

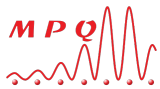


New rules that govern reality

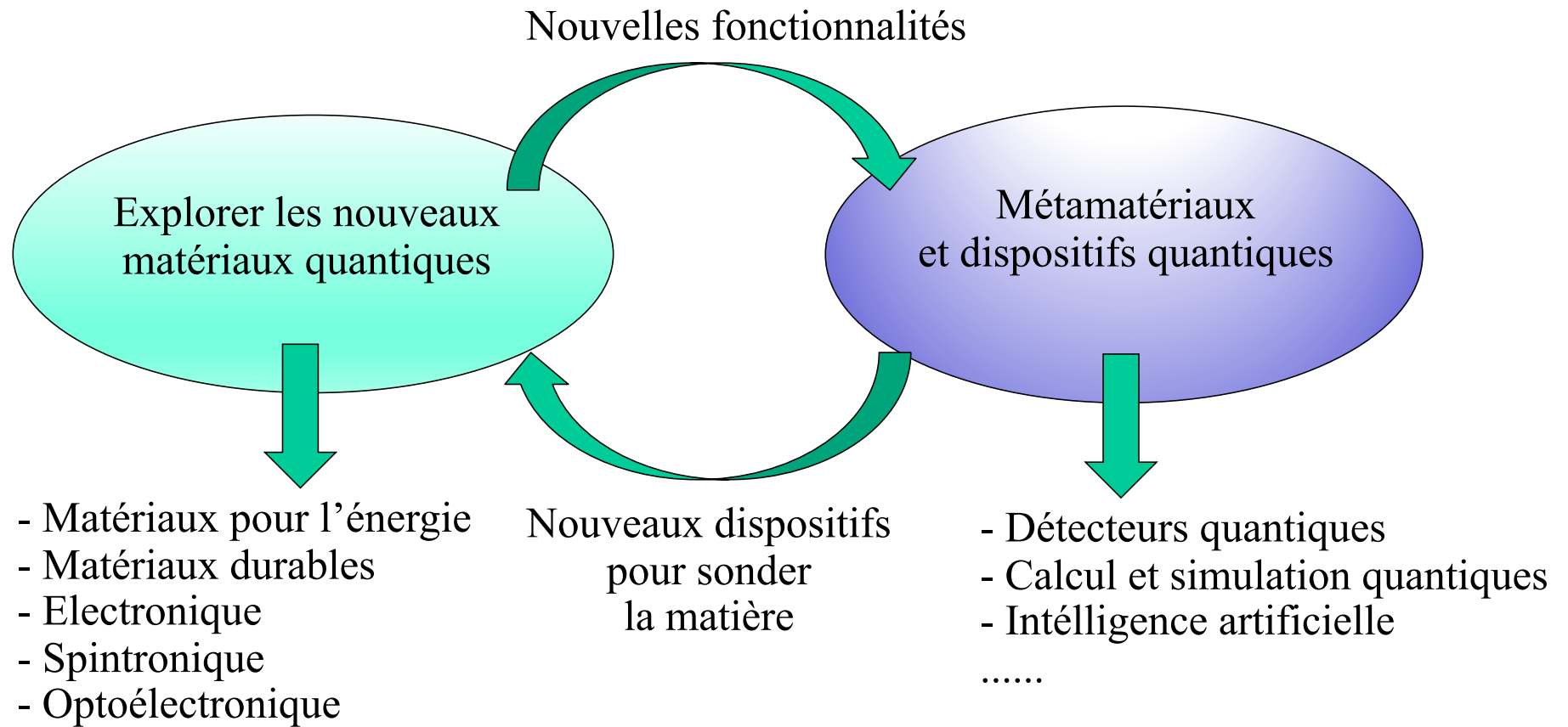


Quantum information, simulation, sensing

Precise control and manipulation of quantum properties of light and matter. Quantum 2.0 is defined as a class of devices that actively create, manipulate and read out quantum states of matter, often using superposition and entanglement



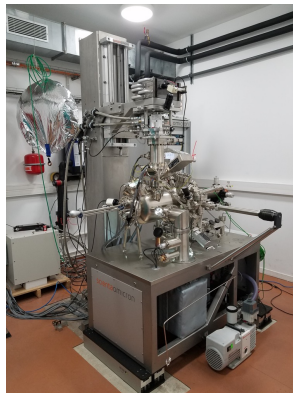
Scientific vision



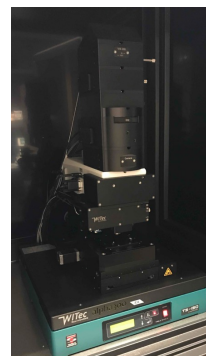
Spécificités de MPQ: sondes ultimes de la matière



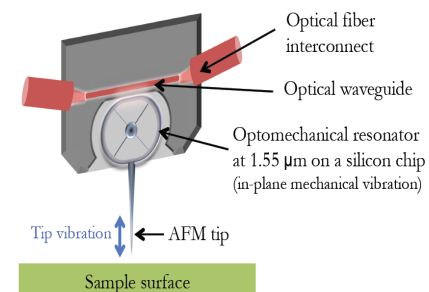
SUPERTEM 2



STM

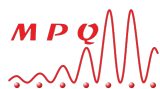
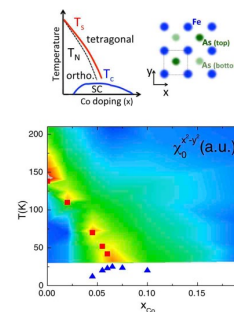
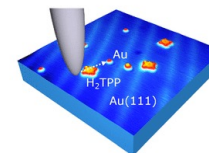
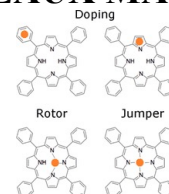
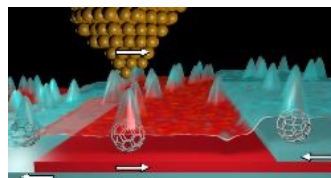


Raman-AFM platform



**AFM ultra-rapide
(en construction)**

EXPLORATION DE NOUVEAUX MATERIAUX



Salle Blanche Condorcet (RENATECH+ & Consortium Paris Centre)



A. Degiron
(resp. scientifique)

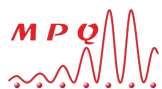


P. Filloux
(resp. technique)

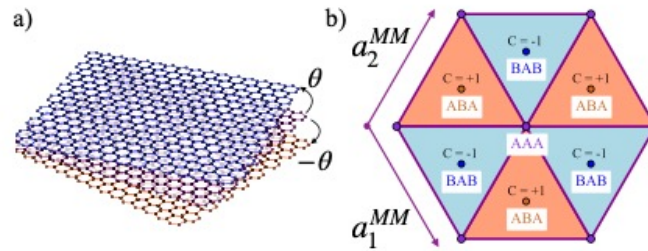
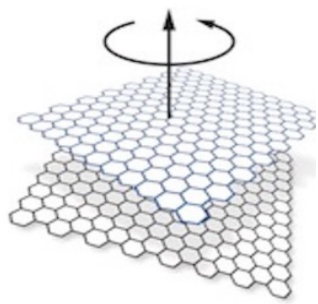
Roméo Bonnet
Ingénieur d'Etudes



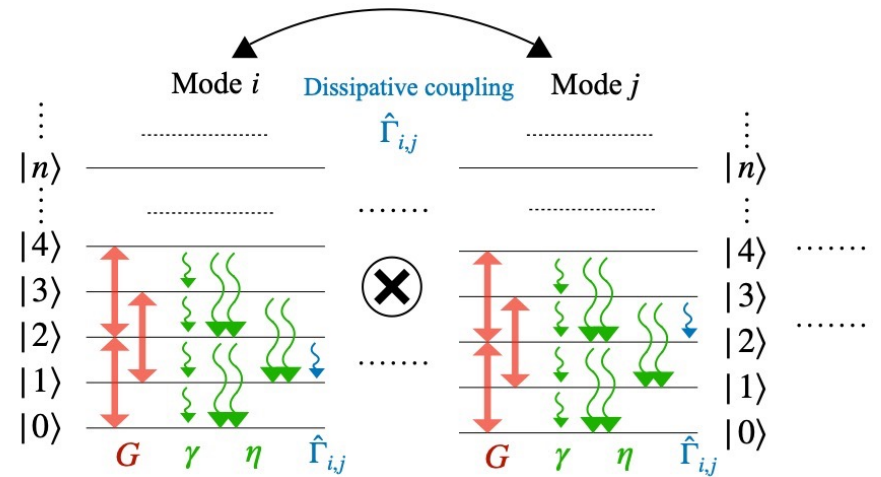
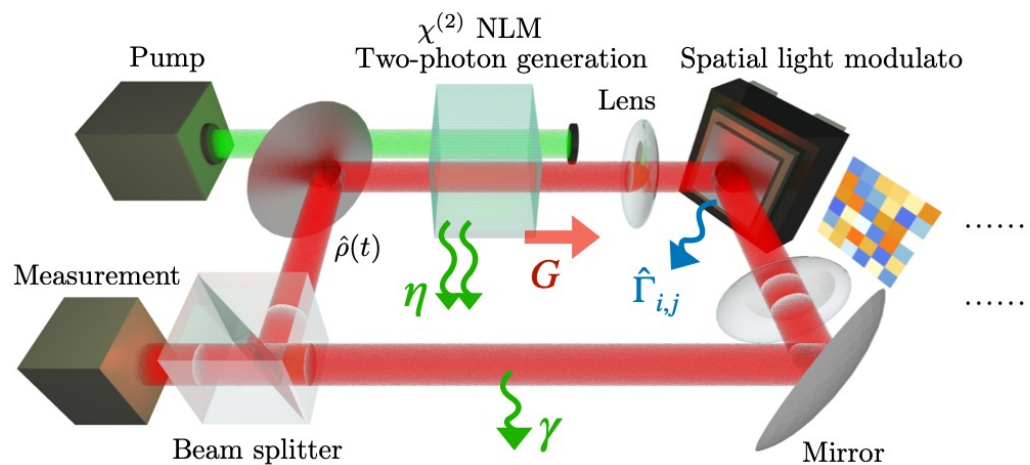
Amel Saidoun
Ingénieur d'Etudes



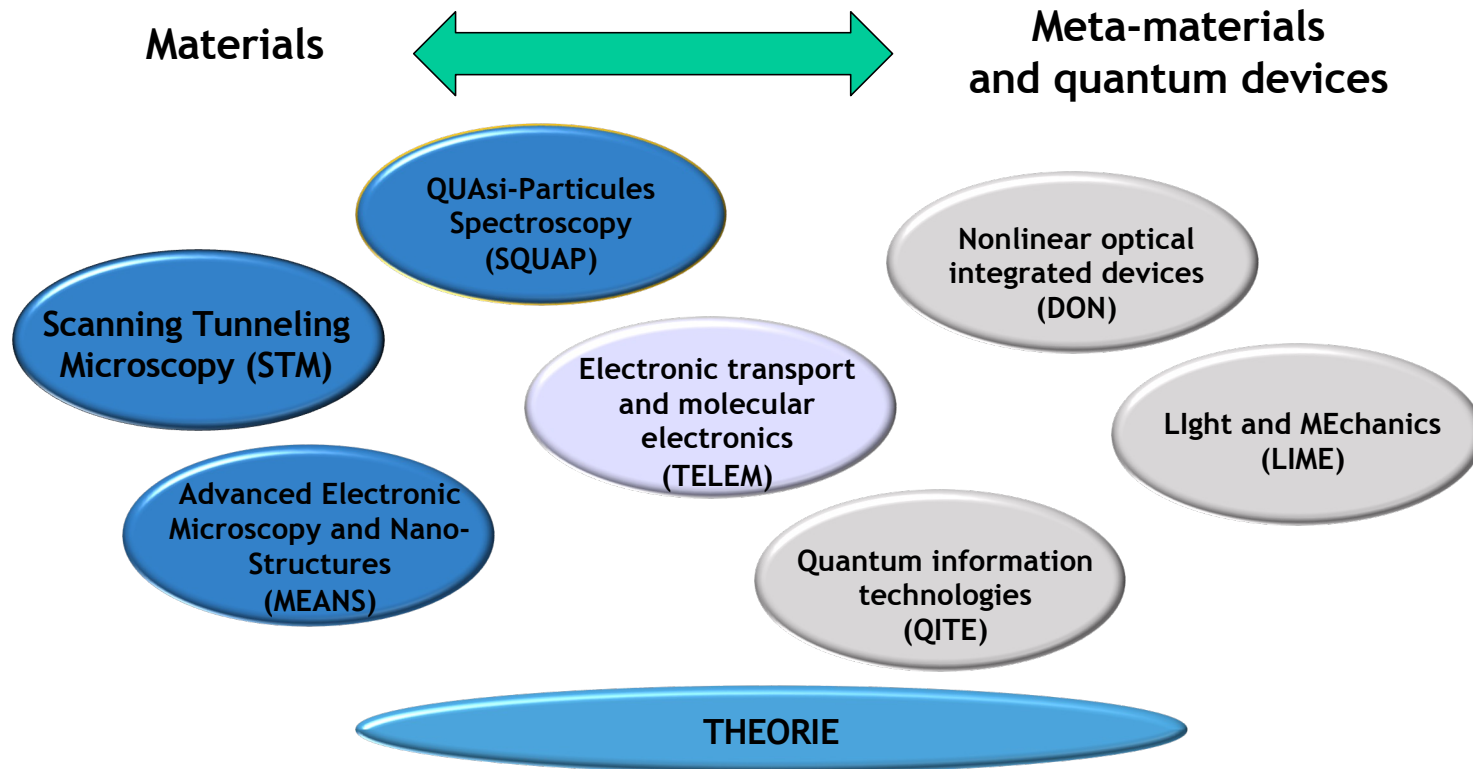
Théorie des matériaux, systèmes et dispositifs quantiques



$$d\langle\hat{O}\rangle = \frac{i}{\hbar}\langle[\hat{H}, \hat{O}]\rangle dt - \frac{1}{2}\sum_{s=1}^{n_{dc}}\sum_{i=1}^N\sum_{j=1}^{i_s}\left(\langle\{\hat{\Gamma}_{i,j}^{(s)\dagger}\hat{\Gamma}_{i,j}^{(s)}, \hat{O}\}\rangle - 2\langle\hat{\Gamma}_{i,j}^{(s)\dagger}\hat{O}\hat{\Gamma}_{i,j}^{(s)}\rangle\right) dt + \sum_{s=1}^{n_{dc}}\sum_{i=1}^N\sum_{j=1}^{i_s}\left[\langle\hat{\Gamma}_{i,j}^{(s)\dagger}(\hat{O} - \langle\hat{O}\rangle)\rangle dZ_{i,j}^{(s)}\right]$$



8 équipes de recherche



Equipe Administrative



N. Merlet

Resp.
Admin.

J. Moreau

Gestion

S. Di Concetto

Gestion

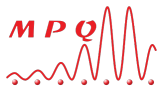
- Administration financière
- Ressources humaines de proximité
- Gestion des dépenses et des missions
- Organisation des événements

Pôle Technique



B. Janvier, M. Nicolas, J. Compain, O. Spiga, L. Noël

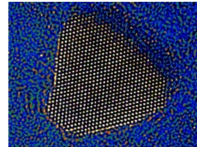
- Electronique
- Instrumentation
- Mécanique
- Cryogénie et vide
- Informatique



Visitez notre site web !

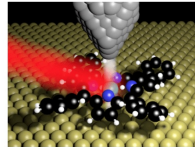
<https://mpq.u-paris.fr>

Eight Research Groups



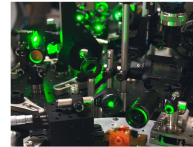
Advanced Electron
Microscopy and Nano-
Structures (MEANS)

[Lire la suite >](#)



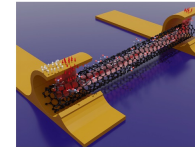
scanning tunnelling
microscopy (STM)

[Lire la suite >](#)



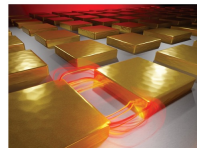
Spectroscopy of quasi-
particles (SQUAP)

[Lire la suite >](#)



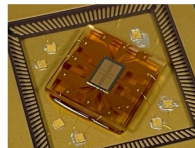
Molecular Scale
Electronic Transport
(TELEM)

[Lire la suite >](#)



Nonlinear Optical
Devices (DON)

[Lire la suite >](#)



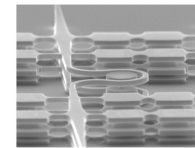
Quantum Information
and Technologies (QITE)

[Lire la suite >](#)



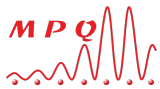
Theory group
(THEORIE)

[Lire la suite >](#)

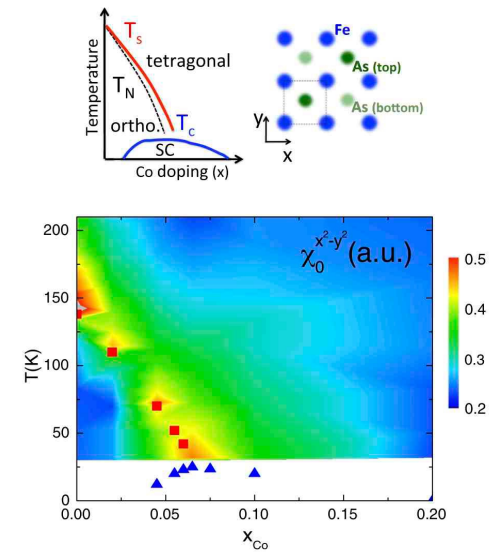
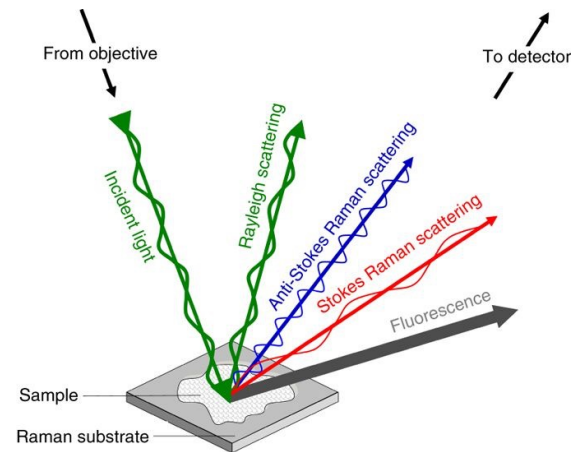


Light and MEchanics
(LIME)

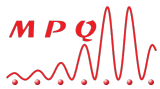
[Lire la suite >](#)



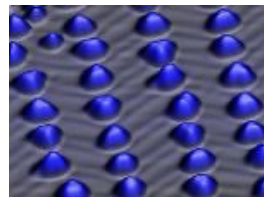
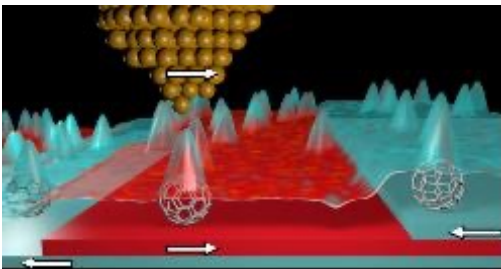
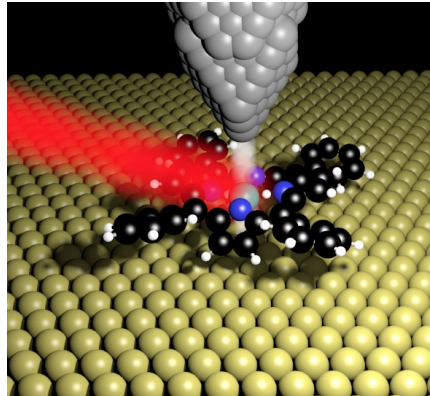
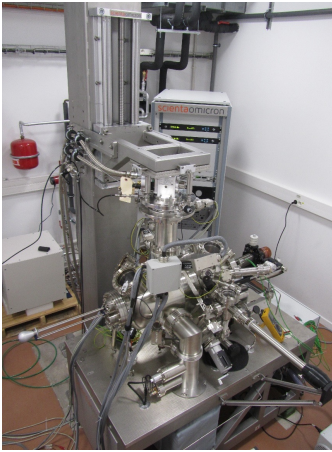
Equipe SQUAP: Spectroscopie des QUasi-Particules



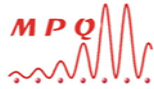
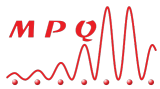
- Multiferroic materials
- Strongly correlated materials
- High-temperature superconductors
- 2D materials (graphene,



Team STM: Scanning Tunneling Microscopy



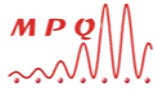
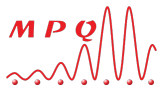
- Physics of self-organized materials
- Nanomagnetism
- Electronic properties
(graphene, 2D materials, metals, organic moleculesà)
- Nanotransport
with and without illumination



Team MEANS: Advanced Electron microscopy

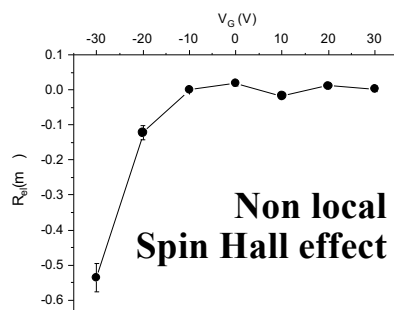
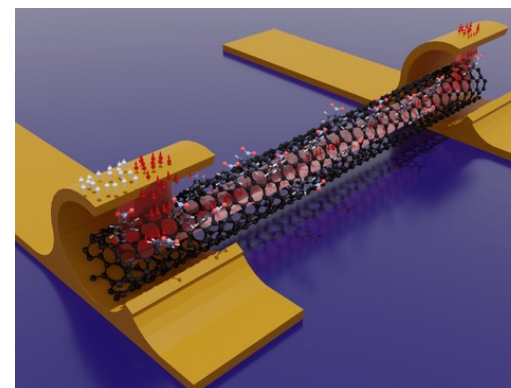
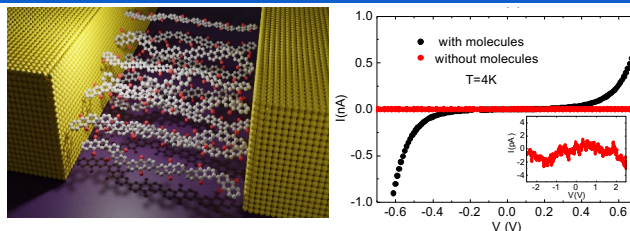


- Nano-alloys
- Nucleation and growth of nanomaterials
- Nanomaterials in biological media

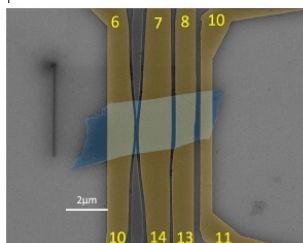


Team TELEM: Molecular scale electronic transport

**Charge
transport in
molecular
layers**

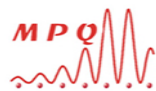
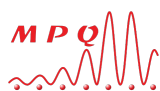
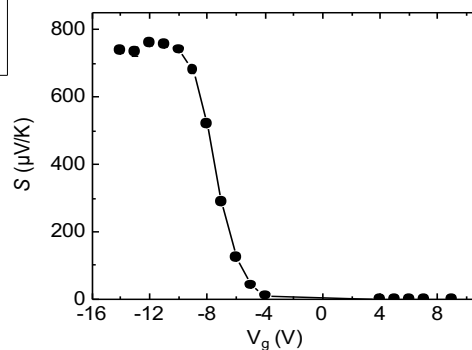


**Non local
Spin Hall effect**

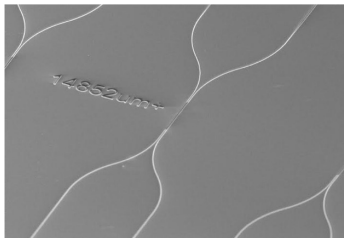
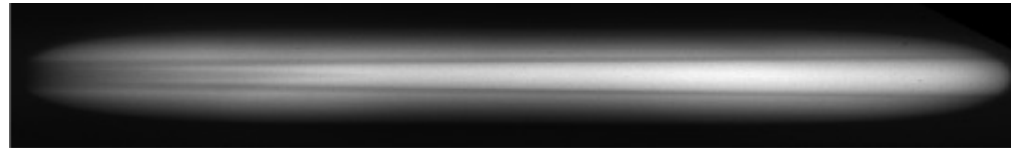
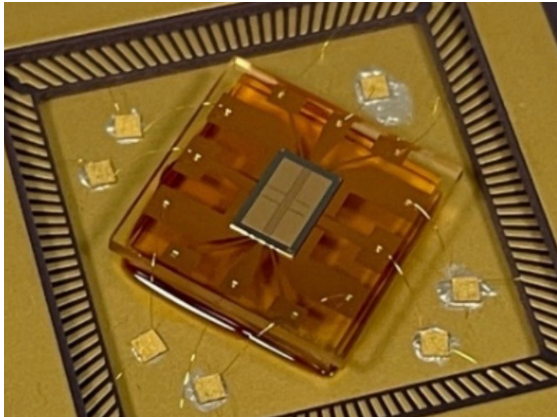


**Charge and spin
transport in 2D
materials**

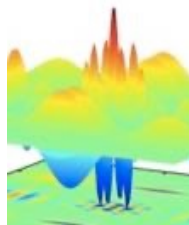
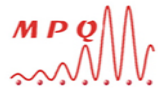
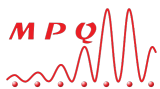
**Thermoelectric properties
of 2D heterostructures**



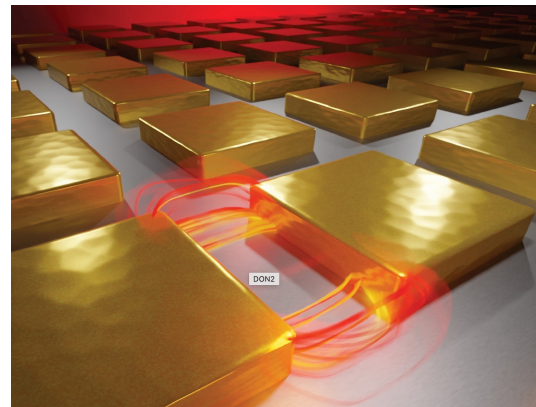
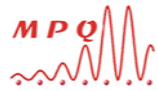
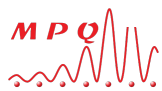
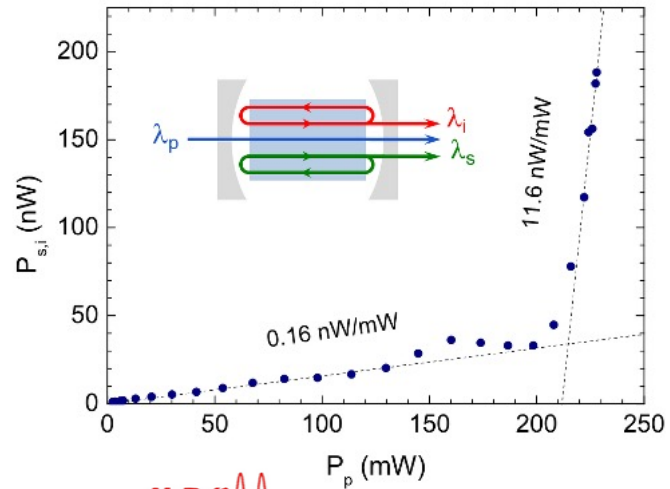
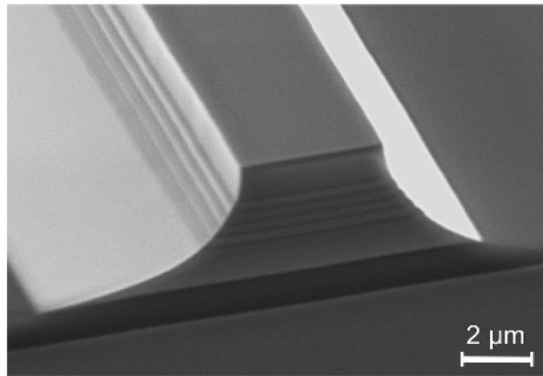
Team QITE: Quantum Technologies



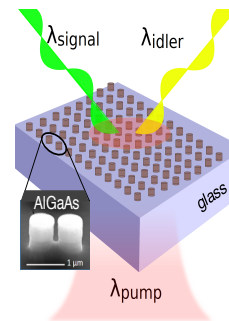
- Quantum photonics
- Trapped ions
- Quantum information theory



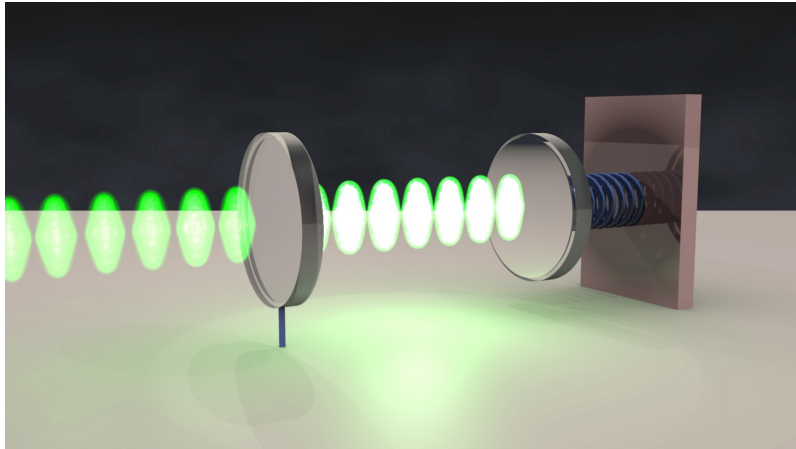
Team DON: Nonlinear optics and optomechanics



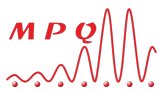
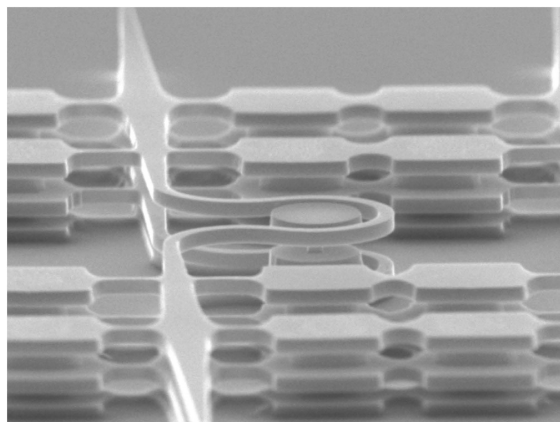
- Nonlinear optical metasurfaces
- Optoelectronic metamaterials



TEAM LIME: Light and Mechanics



- Quantum opto-mechanics
- Ultrasensitive detectors
- Quantum





E. Boulat



E. Bringuier



C. Ciuti



A. Le Boité



J.C. Levy



C. Mora



G. Orso

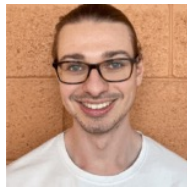


I. Paul

Current PhD students and postdocs



D. Boriçi



F. Borletto



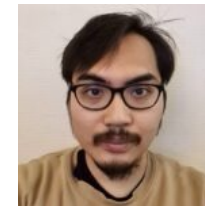
M. Burkhard



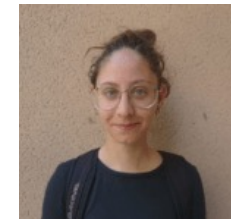
A. Datta



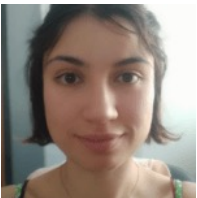
L. Giacomelli



D.-P. Nguyen



M.G. Simonetti



L. Taizart

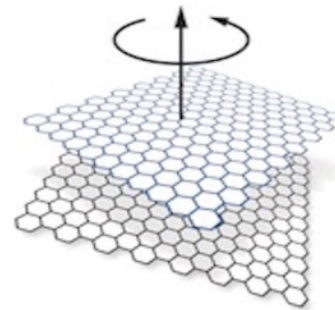
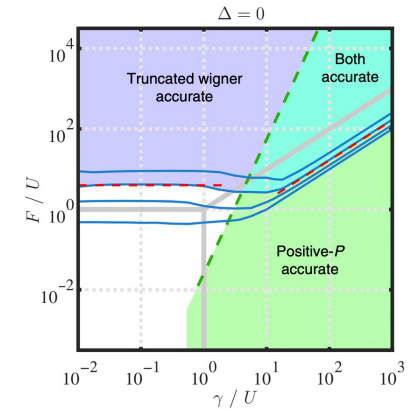
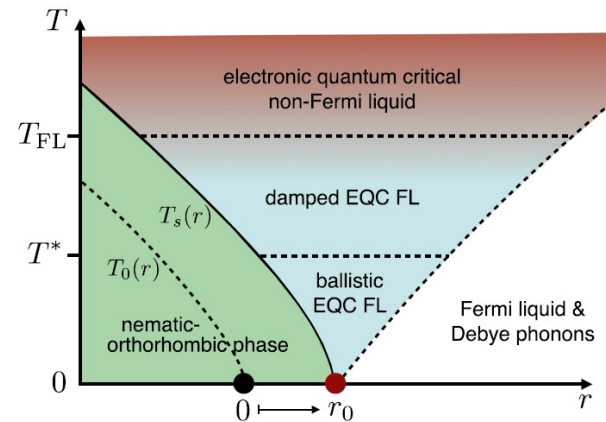
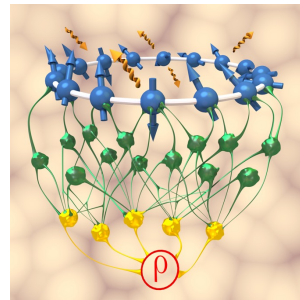
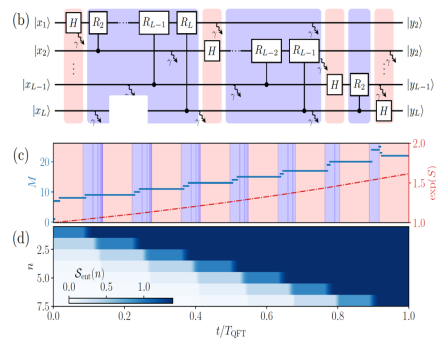
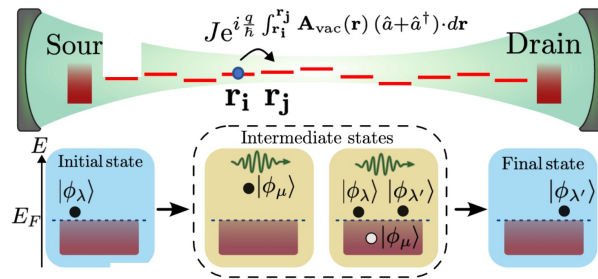


J. Tosca

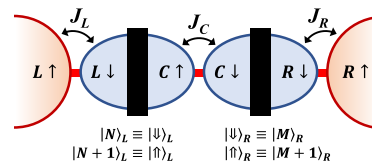
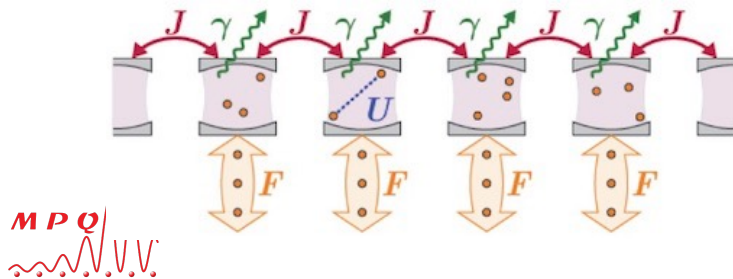
Former PhD students: Y. Mao (2020-2023), Z. Denis (2018-2021), K. Donatella (2019-2022), D. Labat (2015-2018), M. Lakehal (2016-2019), Z. Li (2019-2022), J. Lolli (2014-2017), C. Malciu (2019-2020), F. Minganti (2015-2018), T. Morel (2019-2022), C. Naudet-Baulieu (2017-2020), F. Stellin (2016-2020), F. Vicentini (2016-2019)

Former Post-docs: G. Arwas (2021-2023), N. Bartolo (2015-2019), A. Biella (2016-2020), Z. Denis (2021-2022), D. Guerci (2020-2021), R. Rota (2015-2017), M. Singh (2018-2021), A. Soret (2019-2020), F. Storme (2017-2018), H. Tschihart (2020-2021),

THEORIE

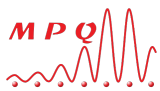
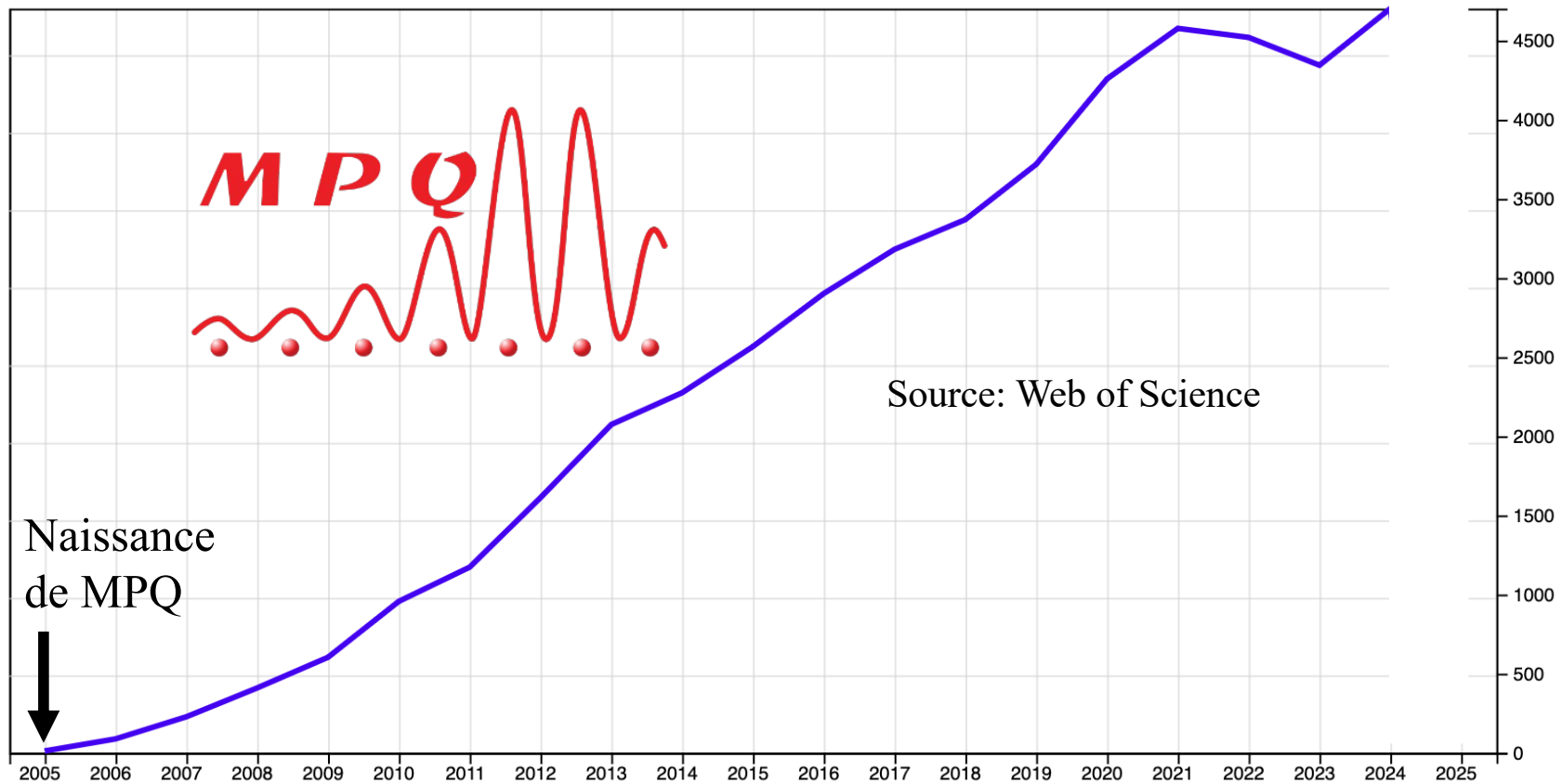


- Quantum optics& information
- Correlated materials
- Machine learning
- Quantum fluids
- Quantum transport



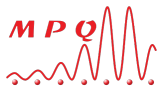
Methods: original analytical & numerical theoretical approaches

Nombre de citations PAR AN pour le laboratoire MPQ (2005–2024)



Clef de recherche sur Web of Science

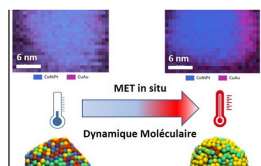
AD=("Matériaux et Phénomènes Quantiques" OR "Laboratoire Matériaux et Phénomènes Quantiques" OR "Materials and Quantum Phenomena" OR "UMR 7162" OR ("Université Paris Cité" NEAR/5 "Matériaux et Phénomènes Quantiques") OR ("Université Paris Diderot" NEAR/5 "Matériaux et Phénomènes Quantiques") OR ("Université Paris Diderot-Paris 7" NEAR/5 "Matériaux et Phénomènes Quantiques") OR ("Université Paris Diderot-Paris 7" NEAR/5 "Laboratoire Matériaux et Phénomènes Quantiques") OR ("Université de Paris" NEAR/5 "Matériaux et Phénomènes Quantiques") OR ("Université Paris 7" NEAR/5 "Matériaux et Phénomènes Quantiques")) OR AU = "Ciuti, C" OR AU = "Sacuto, A" OR AU = "Ricolleau, C" OR AU = "Repain, V" OR AU = "Lafarge, F" OR ((AU = "Ducci, S") AND AD = "Quantiques") OR ((AU = "Leo, G") AND AD = "Phénomènes Quantiques") OR ((AU = "Favero, I") AND AD = "Phénomènes Quantiques") OR ((AU = "Degiron, A") AND AD = "Phénomènes Quantiques") OR ((AU = "Guidoni, L") AND AD = "Phénomènes Quantiques") OR ((AU = "Milman, P") AND AD = "Phénomènes Quantiques") OR ((AU = "Mora, C") AND AD = "Phénomènes Quantiques") OR ((AU = "Paul, I") AND AD = "Phénomènes Quantiques") OR ((AU = "Orso, G") AND AD = "Phénomènes Quantiques") OR ((AU = "Gallais, Y") AND AD = "Phénomènes Quantiques") OR AD = ("Paris" AND "Phénomènes Quantiques") OR AD = ("Diderot" AND "Phénomènes Quantiques") OR ((AU = "Perola, M") AND AD = "Phénomènes Quantiques") OR ((AU = "Rousset, S") AND AD = "Phénomènes Quantiques") OR ((AU = "Sirtori, C") AND AD = "Phénomènes Quantiques") OR AD = "Phénomènes Quantiques") AND PY=(2005-2024)



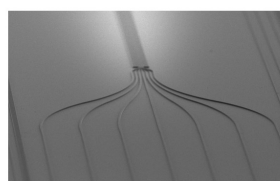
Regardez l'historique des News sur le site web de MPQ



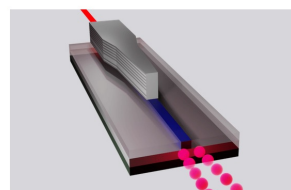
Parution du livre "Physique quantique des matériaux" par Alain Sacuto
| MPQ, SQUAP



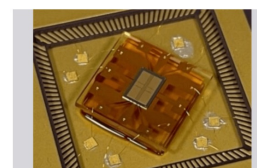
Stabilité thermique des nanoalliages à haute entropie : réalité ou chimère ?
| MEANS, MPQ



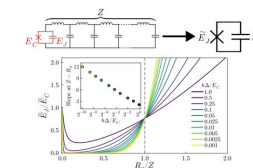
Génération d'intrication spatiale sur puce
| MPQ, QITE



Une source hybride III-V / Silicium de photons intriqués
| MPQ, QITE



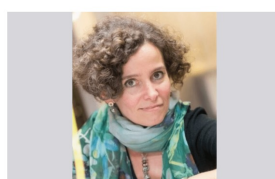
Fête de la science 2024 - A la découverte des technologies quantiques
| MPQ



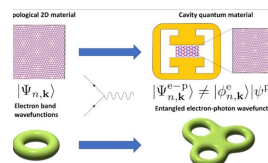
Transition de phase quantique émergente dans les circuits supraconducteurs
| MPQ, THEORIE



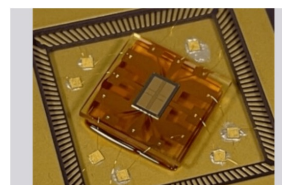
Prix de l'Innovation en Photonique 2024 pour Hamidreza Neshasteh
| LIME, MPQ



Sara Ducci élue Optica Fellow
| QITE



Nouvelle topologie des états électron-photon dans les matériaux quantiques en cavité
| MPQ, THEORIE



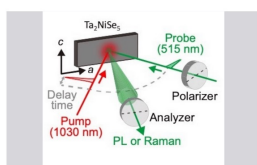
Atelier "A la découverte des technologies quantiques" - Fête de la science
| MPQ



Giuseppe Leo nommé Membre Senior de l'IUF
| DON, MPQ



Ivan Favero lauréat d'une ERC Proof of Concept
| LIME, MPQ



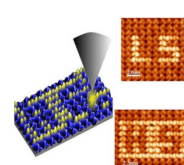
Isolant excitonique : quand les électrons se découplent du réseau cristallin
| MPQ, SQUAP



Samantha Sbarra lauréate de deux prix de thèse
| LIME, MPQ



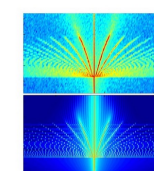
Ecole QFLM 2022 à Varenna, Italie
| MPQ, THEORIE



Adresser une molécule à transition de spin unique dans un réseau 2D
| MPQ, STM



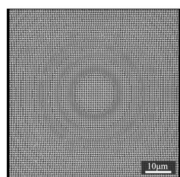
Cristiano Ciuti élu "Fellow" de l'American Physical Society (APS)
| MPQ, THEORIE



Un peigne mécanique de fréquences contrôlé par la lumière
| DON, MPQ

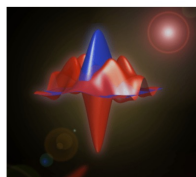


Regardez l'historique des News sur le site web de MPQ



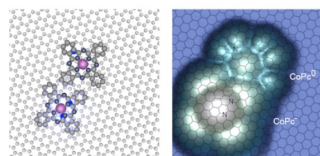
Une métasurface pour génération optique non-linéaire avec contrôle total de phase

| DON, MPQ



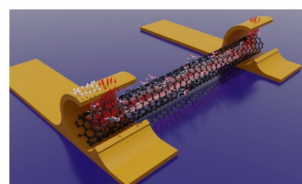
Des puces semiconductrices pour l'ingénierie d'états quantiques de haute dimension

| MPQ, QITE



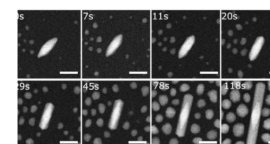
Visualiser la réduction d'une molécule sur du graphène dopé

| MPQ, STM



Une cage protectrice pour le transport de signaux géants de spin

| MPQ, TELEM



Révéler les secrets de la synthèse des nanoalliages anisotropes

| MEANS, MPQ



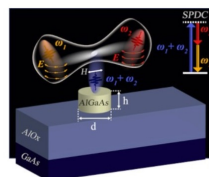
Cristiano Ciuti lauréat du prix Friedel-Volterra de la SFP et SIF

| MPQ, THEORIE



Florent Baboux lauréat d'un projet Emergence(s) de la Ville de Paris

| MPQ, QITE



Génération de paires de photons par une nano-antenne diélectrique

| DON, MPQ



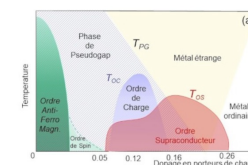
Prix de thèse de la Chancellerie pour Valerio Gili

| DON, MPQ



Giuseppe Leo élu "Fellow" de l'Optical Society of America (OSA)

| DON, MPQ



Un nouveau tournant dans la compréhension de la supraconductivité à haute température dans les oxydes de cuivre

| MPQ, SQUAP



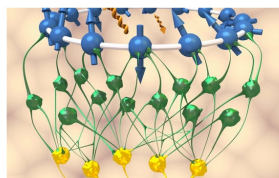
Filippo Vicentini et Alberto Biella reçoivent le prix Atos - Joseph Fourier 2019

| MPQ, THEORIE



Jacko Rastikian reçoit le prix du meilleur poster à Graphene2019 !

| MPQ, TELEM



Des réseaux neuronaux pour simuler les systèmes quantiques

| MPQ, THEORIE



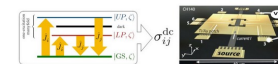
Conférence "Paris Ultrafast 2019" co-organisée par Y. Gallais et I. Paul

| MPQ, SQUAP, THEORIE



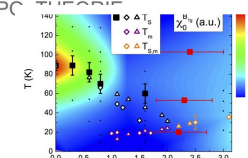
La recherche sur la supraconductivité à MPQ à l'honneur sur France Culture

| MPQ, SQUAP



Magnéto-transport d'électrons modifié par des champs de vide en cavité

| MPQ, THEORIE



Les liens entre supraconductivité et némativité révélés sous pression

| MPQ, SQUAP

Bon 20ème anniversaire aux trois laboratoires du site Condorcet

