

# My start in Photonics

Florence

→ Vienna

→ Berlin



UNIVERSITÀ  
DEGLI STUDI  
FIRENZE

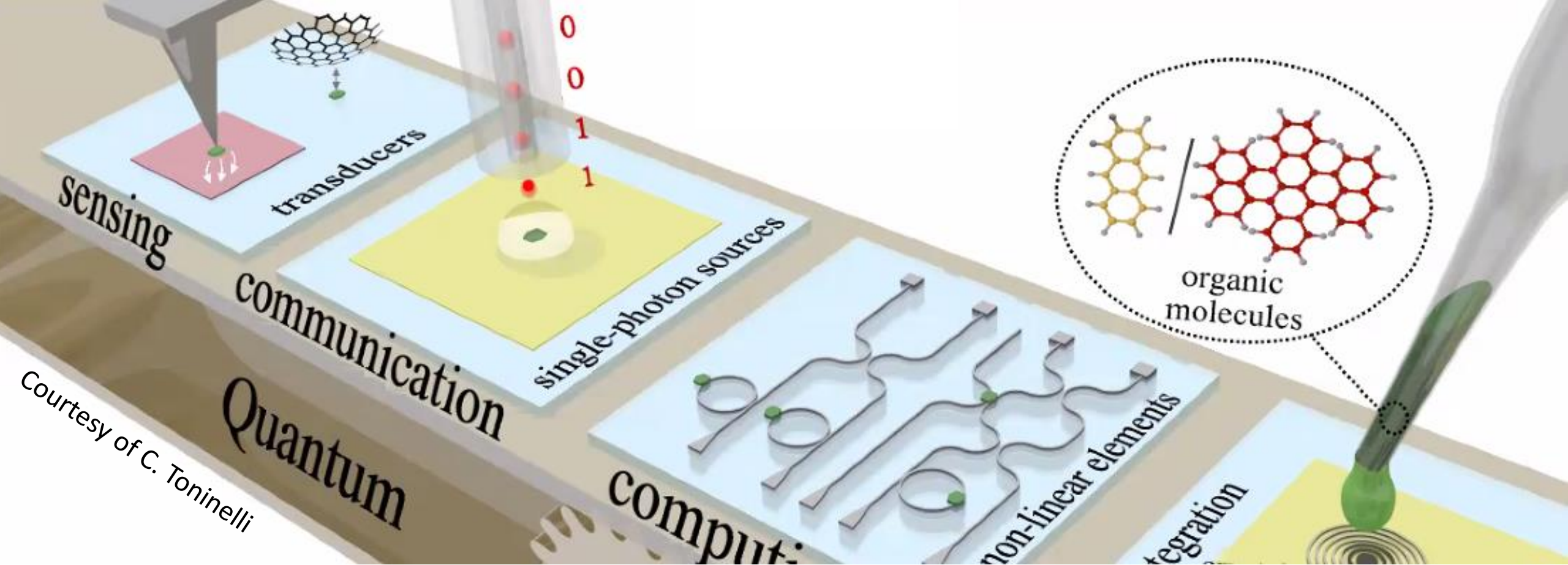


INO-CNR  
ISTITUTO  
NAZIONALE DI  
OTTICA



Sofia Pazzagli

Working in Photonics in Berlin – 28 June 2022



- use organic molecules as sources of [single] photons
- find photonic interfaces (= material + geometry) to [efficiently] collect and control the emitted light
- develop organic-based photonic [quantum] technologies

My start:



[ITA] fotonico = [ENG] something cool

Google search results for "fotonico".

shop.tcgplayer.com   mydeck.it   planetmountain.com   uco.es   researchgate.net

Yu-Gi-Oh! Neo drago fotonico occhi ... youtube.com

cristallo fotonico.jpg ... commons.wikimedia.org

YU-GI-OH! NEO DRAGO ... piclick.it

Apaleador Fotónico | Yu-Gi-... yugioh.fandom.com

Album Fotonico - Single by ... open.spotify.com

Orbitale Fotonico | Dett... db.yugioh-card.com

Glenn J. Asakawa, U ... flickr.com

...deck fotonico صدی صوت اصمحل قليلا shortsaleforsale.com

Picture of Case Nuove, ... tripadvisor.co.nz

RAGGIO FOTONICO - V A | Boom... boomplay.com

Gametrade Store | Galaxy Tra... gametradestore.it

Drago Fotonico Occhi G... pianetahobby.it

(nerd) playing cards – 58%

Music – 17%

Looks like science – 17%

Ham (!!!) – 8%

# — My start:



role models & curiosity-triggers



**Pr Massimo Gurioli**  
Chair of Photonics



**Dr Costanza Toninelli**  
Group Leader of  
Integrated Quantum  
Photonics

Florence

Vienna

Berlin

2014  
MSc Physics

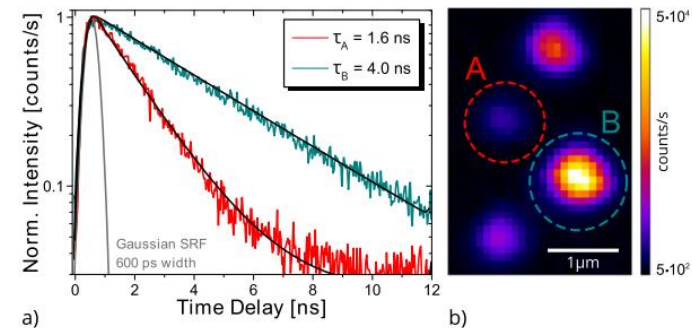
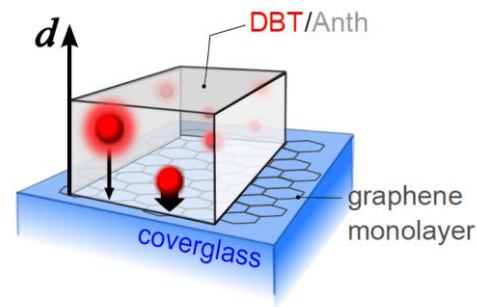
## New Journal of Physics

The open access journal at the forefront of physics

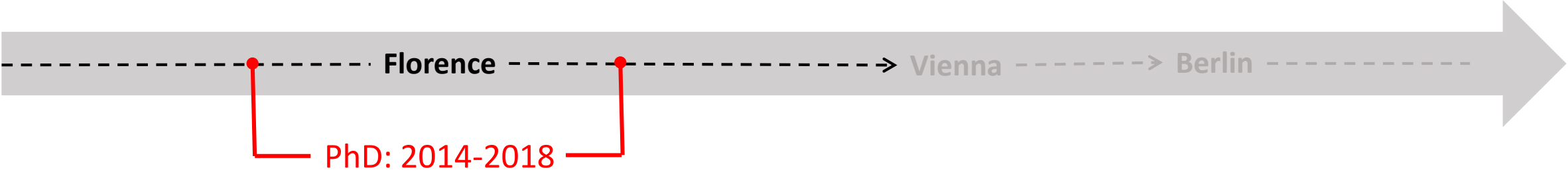
Deutsche Physikalische Gesellschaft  $\Phi$  DPG | IOP Institute of Physics

### Single-molecule study for a graphene-based nano-position sensor

G Mazzamuto<sup>1,2,6</sup>, A Tabani<sup>1,6</sup>, S Pazzagli<sup>2</sup>, S Rizvi<sup>1</sup>, A Reserbat-Plantey<sup>5</sup>,  
K Schädler<sup>5</sup>, G Navickaite<sup>5</sup>, L Gaudreau<sup>5</sup>, F S Cataliotti<sup>1,2,3</sup>, F Koppens<sup>5</sup> and  
C Toninelli<sup>1,3,4</sup>



First paper!



**international collaboration**

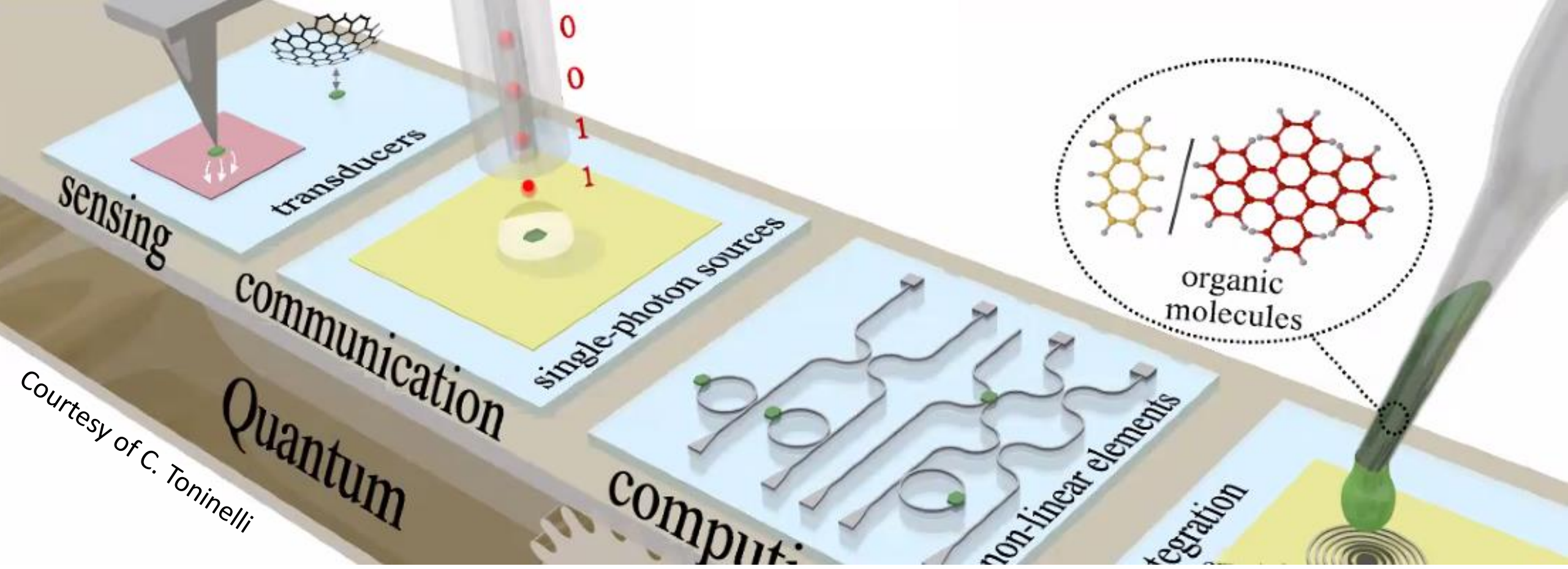


**Pr Arno Rauschenbeutel**  
Chair of Quantum Optics

**conferences, summer schools**



**CEWQO'17**



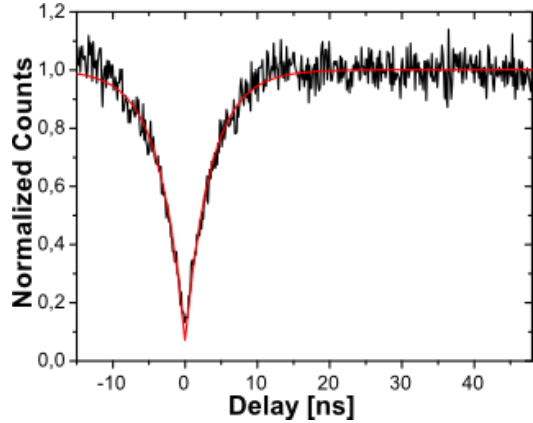
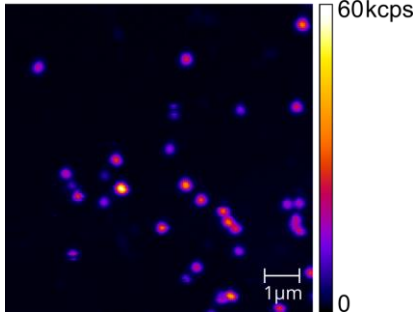
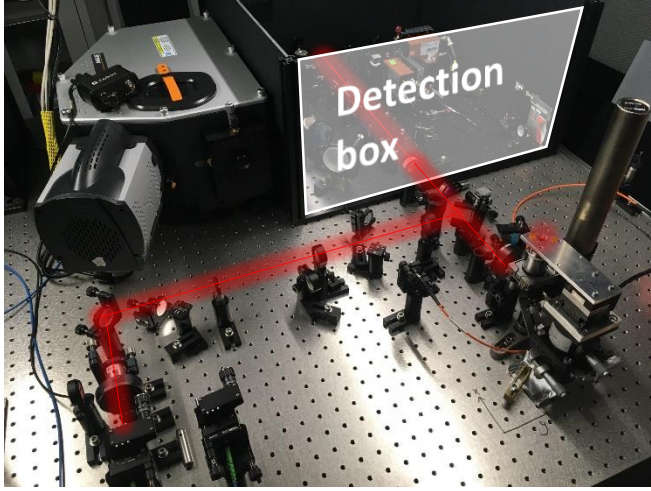
Courtesy of C. Toninelli

- use organic molecules as sources of [single] photons

# Synthesis of organic nanoparticle as single-photon sources

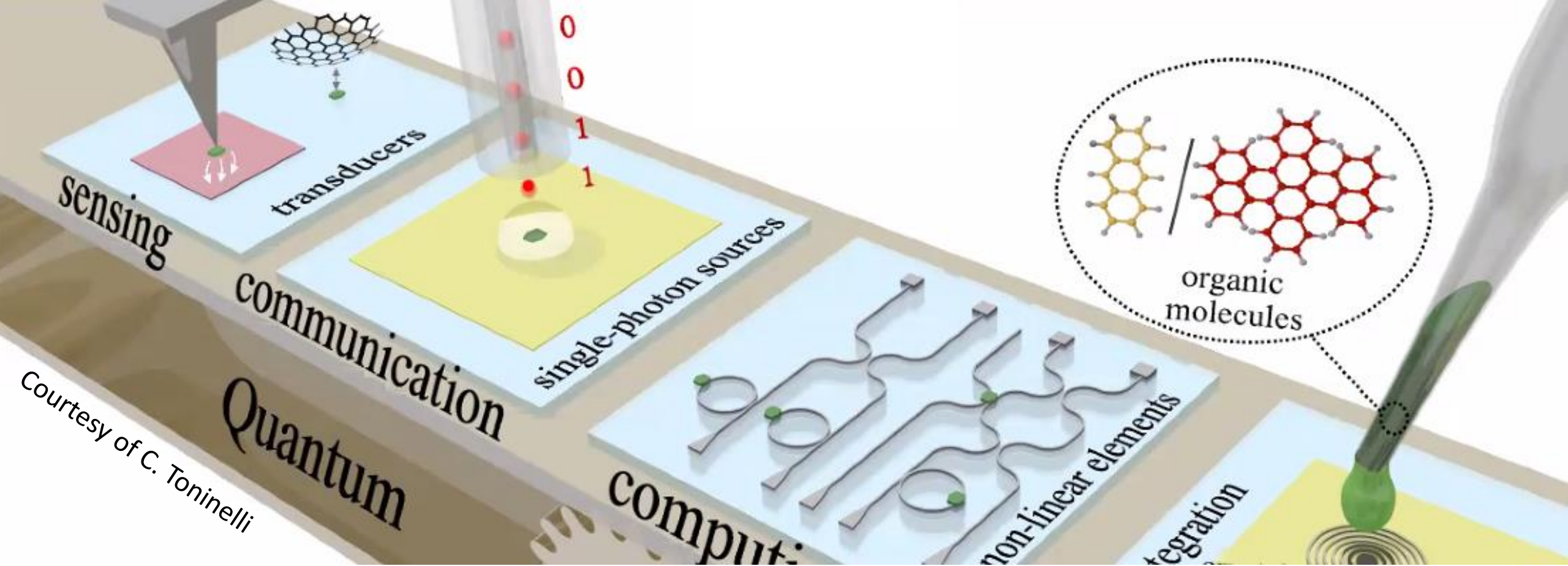


# Optical setup for optical characterization



+ JointLab (Dr Katja Höflich)  
+ BSc project (Lukas Jehna)

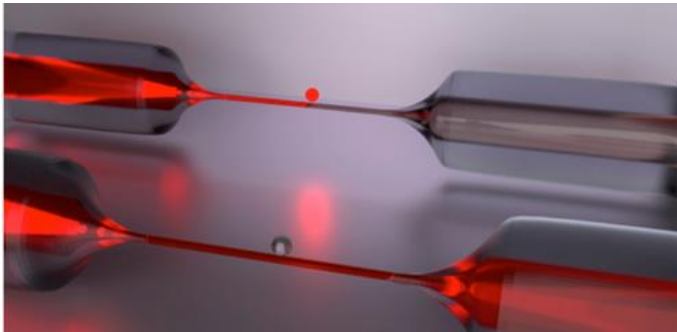




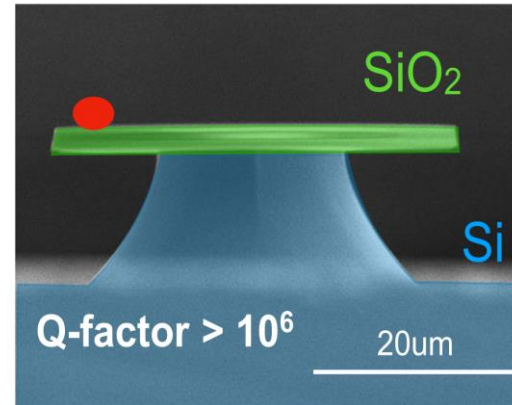
- use organic molecules as sources of [single] photons
- find photonic interfaces (= material + geometry) to [efficiently] collect and control the emitted light

## Tapered optical fiber

Fabricated in our Lab – Thomas Hoinkes

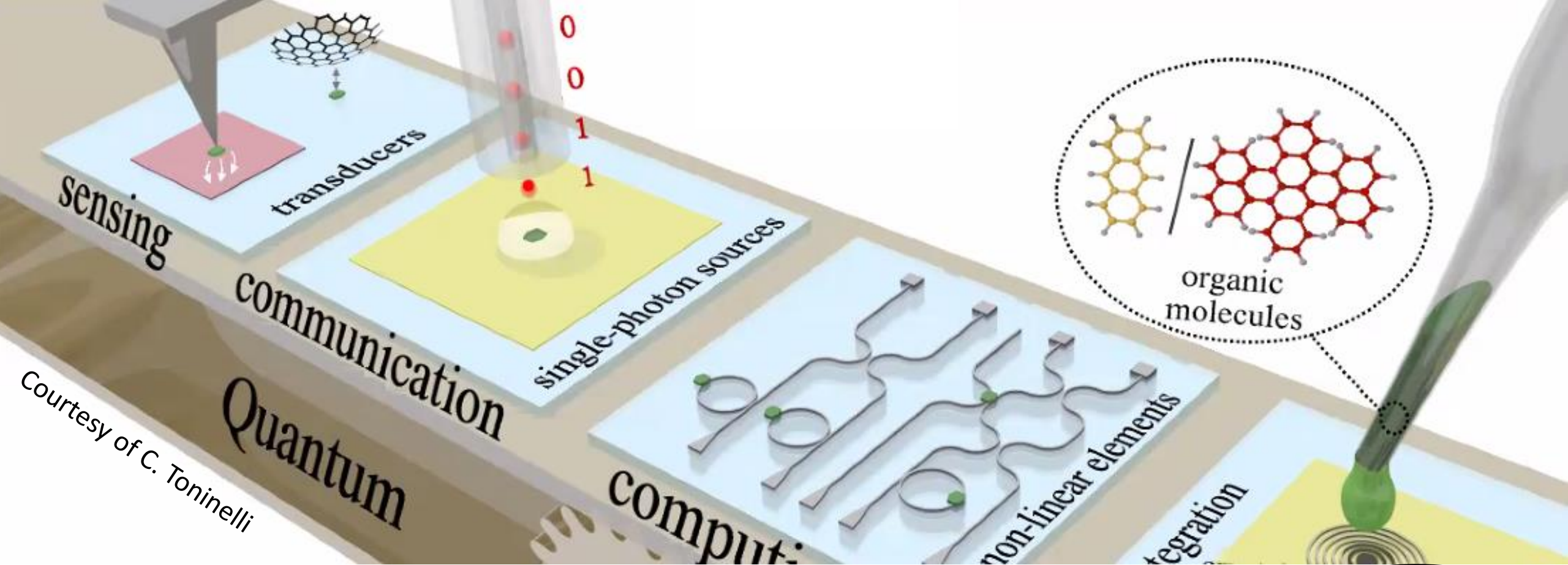


## Microdisk resonators



Characterization setup  
(MSc project – Wanrong Li)

Microinjection setup  
(BSc project – Lewin Kräuter)

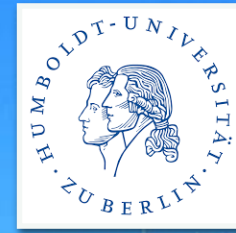


Courtesy of C. Toninelli

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- find photonic interfaces (= material + geometry) to [efficiently] control the emitted light
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My fairy question

Institute of Physics  
Humboldt Universität zu Berlin



AG GOP – Pr Rauschenbeutel



Thank you!  
Questions?

We are here!



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@SofiaPazzagli

