

## NQO Workshop

Prague, February 13 (afternoon) -16 (morning)

Session: 3 hours

Keynote talk: 45 minutes including questions

Invited talks: 30 minutes including questions

Industry and COST Actions talks: 20 minutes including questions

Contributed talks: 15 minutes including questions

Coffee break: 30 minutes

Discussion: 30 minutes (style Gordon Conference with discussion leader)

Panel discussion: 40 minutes

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### Afternoon first day (Feb.13, Tuesday, 16:00 - 18:30)

| <b>Session 1: General session (all WGs, focus on GB and ESR)</b> |                                  |  |           |
|--|----------------------------------|--|-----------|
| <b>Opening (15 min)</b>  |                                  |  |           |
| <b>Keynote (45 min)</b>  | Stefania Castelletto             | Challenge, advances and perspective on nanoscale quantum optics applications using color centers in carbon related materials | Australia |
| <b>Invited (30 min)</b>  | Ruth Oulton and Humeyra Caglayan | Gender balance and ESR   | UK and FI |
| <b>Group Work and Discussion (1 hour)</b>                        | Ruth Oulton and Humeyra Caglayan | Gender balance and ESR in small groups   | UK and FI |

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### Evening first day (19:30 - 21:30)

| <b>Evening Session 1</b> |               |  |  |
|--------------------------|---------------|--|--|
| <b>Social Event</b>      | Social dinner |  |  |

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### Morning second day (Feb. 14, Wednesday, 9:00 - 12:00)

| <b>Session 2: WG1</b>       |               |  |     |
|-----------------------------|---------------|--|-----|
| <b>Invited (30 min)</b>     | Jeff Thompson | Isolating and enhancing the emission of single erbium ions using a silicon nanophotonic cavity | USA |
| <b>Contributed (15 min)</b> | Döndü Sahin   | Superconducting nanowire single-photon detectors in a racetrack cavity                         | UK  |

| <b>Session 2: WG1</b>        |                   |  |    |
|------------------------------|-------------------|--|----|
| <b>Contributed (15 min)</b>  | Serkan Ates       | The influence of electron-phonon interaction on single photon emission from defects in hexagonal boron nitride | TR |
| <b>Contributed (15 min)</b>  | Pietro Lombardi   | Single photon sources for integrated quantum photonics based on organic molecules                              | IT |
| <b>Coffee break (30 min)</b> |                   |  |    |
| <b>Contributed (15 min)</b>  | Nina Owschimikow  | Photon statistics beyond $g(2)$ for quantum dot ensembles  | DE |
| <b>Contributed (15 min)</b>  | Martin van Exter  | A fiber-coupled source of identical single photons   | NL |
| <b>Contributed (15 min)</b>  | Alberto Santamato | Quantum communications protocols aimed to photonics integration  | IT |
| <b>Discussion (30 min)</b>   |                   |  |    |

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MC Meeting during the afternoon break (14:00 - 15:30)

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Afternoon second day (15:30 - 18:30)

| <b>Session 3: WG3</b>        |                |  |    |
|------------------------------|----------------|--|----|
| <b>Invited (30 min)</b>      | Aris Dreisman  | Quantum Maxwell's demon, quantum information and weak values in scattering and elementary interactions | DE |
| <b>Contributed (15 min)</b>  | Marius Radke   | Color centers as atomic-sized sensors for nanoscale fields   | DE |
| <b>Contributed (15 min)</b>  | Yves Caudano   | Geometric phases in weak measurements using a quantum eraser and their Bloch sphere representation     | BE |
| <b>Contributed (15 min)</b>  | Alexander Huck | Construction and driving of robust qubits in the solid state   | DK |
| <b>Coffee break (30 min)</b> |                |  |    |

| <b>Session 3: WG3</b>       |                     |  |    |
|-----------------------------|---------------------|--|----|
| <b>Contributed (15 min)</b> | Ariel Guerreiro     | Entanglement generation in mesoscopic photonic systems                           | PT |
| <b>Contributed (15 min)</b> | Marian Varga        | R&D of diamond technology for optics and photonics                               | CZ |
| <b>Contributed (15 min)</b> | Renaud A. L. Vallée | Super-Radiance, Lasing and (Beyond) Strong Coupling in Plasmonic Nano-Structures | FR |
| <b>Discussion (30 min)</b>  |                     |  |    |

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### Evening second day (19:30 - 21:30)

| <b>Evening Session 2:<br/>Poster WG1 and WG3</b> |  |  |  |
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| <b>Poster with finger food</b>                   |  |  |  |
| <b>Poster Prize</b>                              |  |  |  |

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### Morning third day (Feb. 15, Thursday, 9:00 - 12:30)

| <b>Session 4: Industry &amp; COST Actions</b> |                    |  |              |
|---|--------------------|--|--------------|
| <b>Invited (20 min)</b>                       | Jason Smith        | Commercialising quantum components: optical microcavities for sensing applications | UK           |
| <b>Invited (20 min)</b>                       | Eamonn Murphy      | ESA  | NL           |
| <b>Invited (20 min)</b>                       | Valérian Giesz     | Efficient solid-state quantum light sources for quantum technologies               | FR           |
| <b>Invited (20 min)</b>                       | Alexander Saltykov | Introduction to deep tech hardware Venture Capital                                 | Russian Fed. |
| <b>Coffee break (30 min)</b>                  |                    |  |              |
| <b>Invited COST (20 min)</b>                  | Angelo Bassi       | Quantum technologies in space  | IT           |
| <b>Invited COST (20 min)</b>                  | Monika Fleischer   | Nanospectroscopy   | DE           |

| <b>Session 4: Industry &amp; COST Actions</b> |  |   |   |
|---|--|---|---|
| <b>Invited COST (20 min)</b>                  | Fernando Luis  | Molecular spins for quantum technologies  | ES  |
| <b>Panel Discussion (40 min)</b>              | Vladimir Buzek<br>Stefania Castelletto<br>Irene D'Amico<br>Bart Veys<br>Vladimir Protsenko<br>Martin van Exter | ITC<br>IPC<br>Brexit<br>COST<br>NNC<br>MC | SK<br>Australia<br>UK<br>BE<br>Russian Fed.<br>NL |

Industry meeting during the lunch break (13:30 - 15:00)

Afternoon third day (15:30 - 18:30)

| <b>Session 5: WG4</b>        |                      |   |     |
|------------------------------|----------------------|---|-----|
| <b>Invited (30 min)</b>      | Ana Asenjo Garcia    | Correlated dissipation: inhibiting atomic decay via cooperative dynamics    | USA |
| <b>Contributed (15 min)</b>  | Nuno Silva           | Tunable optical analogues using quantum optical systems                     | PT  |
| <b>Contributed (15 min)</b>  | David Edward Bruschi | "Mechano-optics": Role-reversal in optomechanical quantum simulators        | UK  |
| <b>Contributed (15 min)</b>  | Pablo Aitor Postigo  | Photonic and optomechanical sensors for nanoscaled and quantum thermometry  | ES  |
| <b>Coffee break (30 min)</b> |                      |   |     |
| <b>Contributed (15 min)</b>  | Peter Domokos        | Critical behaviour of laser-driven ultracold atoms in optical resonators    | HU  |
| <b>Contributed (15 min)</b>  | Helmut Ritsch        | Super- and subradiance of coupled quantum emitters in confined light fields | AT  |
| <b>Contributed (15 min)</b>  | Daniele De Bernardis | Cavity QED in the non-perturbative regime                                   | AT  |
| <b>Discussion (30 min)</b>   |                      |   |     |

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## Evening third day (19:30 - 21:30)

| Evening Session 3:<br>Poster WG2 and WG4 |  |  |  |
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| Poster with finger food                  |  |  |  |
| Poster Prize                             |  |  |  |

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## Morning fourth day (Feb. 16, Friday, 9:00 - 12:00)

| Session 6: WG2        |                        |  |    |
|-----------------------|------------------------|--|----|
| Invited (30 min)      | Takuya Higuchi         | Ultrafast coherent control   | DE |
| Contributed (15 min)  | Rana Nicolas           | Nanoscale amplification of high order laser harmonics in semiconductors  | FR |
| Contributed (15 min)  | Stelios Couris         | Nonlinear optical response of graphene and graphene derivatives  | GR |
| Contributed (15 min)  | Gaby Slavcheva         | Giant resonant ultrashort pulse polarisation rotation in a charged quantum dot – micropillar system            | AT |
| Coffee break (30 min) |                        |  |    |
| Contributed (15 min)  | Mirco Kolarczik        | White light 2D coherent spectroscopy reveals crossed excitons and state coupling in InAs/InGaAs nanostructures | DE |
| Contributed (15 min)  | Giovanni Mattei        | Quantum emitters coupled to pre-plasmonic and/or plasmonic nanostructures for quantum efficiency enhancement   | IT |
| Contributed (15 min)  | Maeliss Ethis de Corny | SHG response in gold and aluminum antennas: where does non-local contributions play a major role?              | FR |
| Discussion (30 min)   |                        |  |    |

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## Conclusions and departure (without lunch)

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## Wednesday - Friday

| <b>Exhibition</b>          |  |  |    |
|----------------------------|--|--|----|
| <b>Nanophab</b>            | Maurangelo Petruzzella<br>Francesco Pagliano | Nanofabrication service                  | NL |
| <b>Swabian Instruments</b> | Helmut Fedder                                | Time tagging electronics<br>and software | DE |
| <b>Sparrow Quantum</b>     | Toke Lund-Hansen                             | Single-photon source                     | DK |
| <b>Quandela</b>            | Valérian Giesz                               | Single-photon source                     | FR |
| <b>Tescan</b>              | TBC  | FIB                                      | CZ |