NEWSLETTER #5

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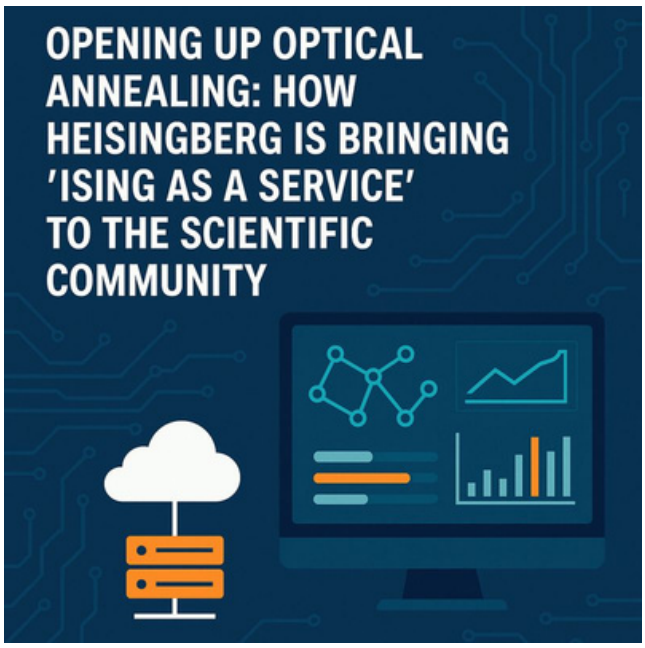
SPATIAL QUANTUM OPTICAL ANNEALER
FOR SPIN HAMILTONIANS

Heisingberg Insights

Welcome to the 2026 edition of Heisingberg Newsletter!

Heisingberg brings 'Ising-as-a-service' to the scientific community

Heisingberg is launching "Ising-as-a-Service," giving researchers worldwide — via a secure cloud portal — on-demand access to a real photonic annealer. Their custom control software allows users to upload optimization problems, run algorithms remotely, and monitor the system's evolution in real time. By combining cutting-edge photonic hardware and a fully managed online interface, Heisingberg aims to democratize access to advanced optical optimization technology and accelerate scientific and industrial innovation.



Read full article

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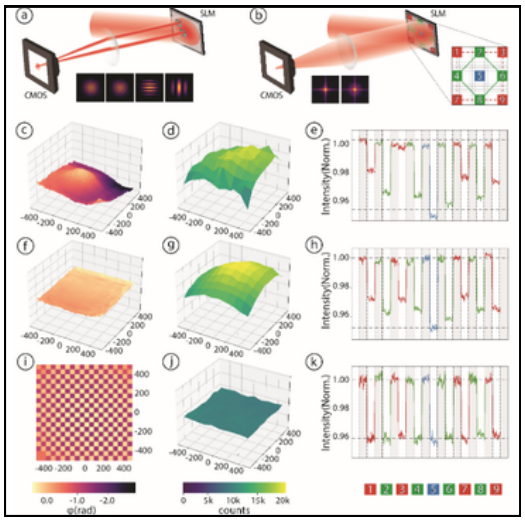
Publications

High-Fidelity Spatial Photonic Ising Machines via Precise Wavefront Shaping

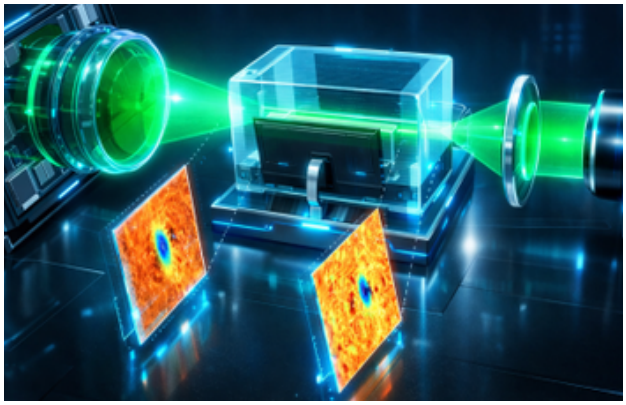
D. Karanikolopoulos, P. S. Karavelas, L. Mouchliadis, A. K. Spiliotis, N. L. Pitanios, S. Gentilini, D. Veraldi, P. Charlesworth, D. Pierangeli, J. Sakellariou, N. G. Berloff, S. I. Tsintzos, C. Conti, P. G. Savvidis



arXiv:2602.13714

DOI: https://doi.org/10.1103/ggbs-y21w

Submitted on 14 February, 2026



Observation of Lump Solitons

Ludovica Dieli, Davide Pierangeli, Fabio Baronio, Stefano Trillo, and Claudio Conti

Phys. Rev. Lett. 136, 053804

DOI: https://doi.org/10.1103/ggbs-y21w

Published 6 February, 2026

A Unified Analytic Framework for Microlensing Caustics: Geode Solutions and Hyper--Catalan Signatures

Gleb Berloff, Natalia G. Berloff *arXiv:2511.15756* DOI: https://doi.org/10.1103/ggbs-y21w

Submitted on 19 November, 2025

Polychronous Wave Computing: Timing-Native Address Selection in Spiking Networks

Natalia G. Berloff arXiv:2601.13079v1 DOI: https://doi.org/10.48550/arXiv.2601.13079

Submitted on 19 January, 2026

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News from the Portfolio

AQIPCS Portfolio Steering Committee meeting

On Tuesday, November 18th the AQIPCS Portfolio Steering Committee meeting was held in Brussels at European Innovation Council and SMEs Executive Agency (EISMEA).
Heisingberg was represented by Simos Tsintzos and Alexis Askitopoulos of Qubitech and by Leonidas Mouchliadis from the Foundation for Research and Technology - Hellas (FORTH). Stylianos Kazazis (Ubitech) also joined the meeting online and as the leader of WG4 presented a comprehensive plan for standardization and IPR protection strategies.

It was a great opportunity for representatives from synergetic projects in the AQIPCS Portfolio to meet and to plan in common their next scientific and communication activities!

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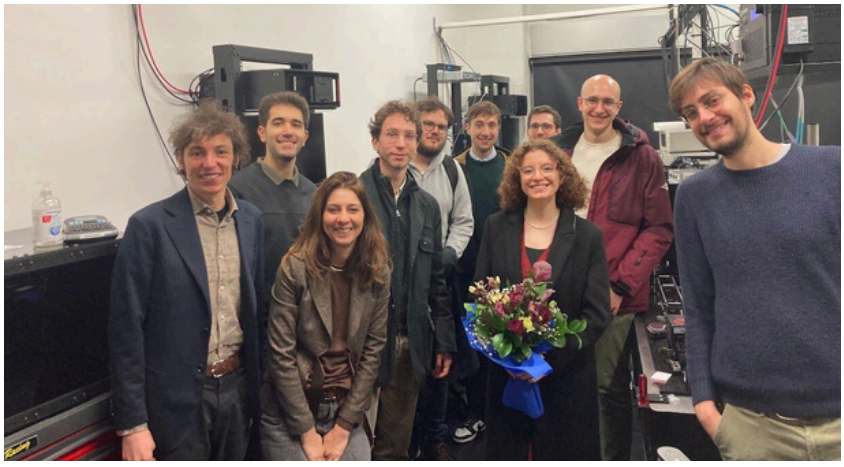
News from the Consortium

Computing with Physical Systems | Les Houches, France January 18-23 2026

Prof. Natalia Berloff (University of Cambridge) as invited speaker in École de Physique.

See full presentation

PhD Defence of Ludovica Dieli | Photonics at Sapienza, January 2026



Ludovica Dieli, PhD student and member of Photonics at Sapienza Group supported by Heisingberg, defended successfuly her PhD thesis in January 2026, titled: “Multidimensional Fluids of Light in Nonlinear Physics. Bridging theory and Experiment in Integrable and Non-Integrable Regimes”

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Synergies

New strategic synergy with CASTOR - Horizon

Beginning of 2026, Heisingberg established a new strategic synergy with another cutting-edge European research initiative: CASTOR – Continuum of Trust: Increased Path Agility and Trustworthy Device and Service Provisioning.

CASTOR is a Horizon Europe innovation action focused on enabling secure, trusted communications across the computing continuum — from cloud to edge environments. CASTOR develops novel trust quantification, distributed attestation, and optimized secure path composition mechanisms to support trustworthy service delivery in heterogeneous infrastructures.

CASTOR
Building Trust
in the Computing Continuum

By joining forces, the two projects aim to exchange expertise, align complementary research paths, and explore future opportunities at the intersection of quantum computing and trusted distributed systems.
We look forward to strengthening cross-project collaboration and maximizing the impact of European research and innovation.

Read more

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