

***Postdoctoral position on experimental Two-Dimensional
Dissipative Solitons and Frequency Combs at the
“Nanophotonics Technology Center” (Universitat Politècnica
de València, Spain)***

2D spatiotemporal solitons in nonlinear Kerr media [1-3], never observed thus far, constitute an exciting and promising generalisation to higher dimensions of the well-known microcombs in microring resonators. These new waves are the carriers of spatially sparse frequency combs offering unique opportunities to explore the formation of higher power, broader, and higher resolution coherent microcombs. This project aims at a radically new strategy to excite integrated frequency combs by exploiting intrinsically multi-dimensional physical phenomena with no lower dimensional analogues.

We are offering a 2-year post-doctoral position at the Nanophotonics Technology Center (<https://ntc.webs.upv.es/>) to work on the experimental side of a wide project aiming at the observation of robust two-dimensional spatiotemporal solitons in novel integrated geometries (fabricated in-house with silicon nitride and other materials). The successful candidate will co-work with a PhD student and develop additional experiments independently. The Postdoctoral researcher is expected to embrace this project, get familiar with previous discoveries [1-3] and investigate other novel routes. Amongst other activities, the researcher will be in charge of the accurate design of the micro-cavity geometries needed for each application.

The candidate will be integrated into the research team consisting theoreticians (at IUMPA-UPV and at ICFO-Nonlinear Phenomena Group) as well as experimentalists and PIC fabricators (at NTC-UPV).

The candidates must hold a PhD degree in experimental nonlinear optics or photonic integrated circuits. Previous experience with optical solitons is desirable.

A high level in English is mandatory.

Candidates should send a motivation letter (1 page) and a short CV to both Prof. Alejandro Martínez (amartinez@ntc.upv.es) and to A/Prof. Carles Milián (carmien@upvnet.upv.es).

Application deadline: until position is filled

Starting date: as soon as possible from 1st October, 2025.

Duration: up to 2 years (renewable on a yearly basis)

[1] C. Milián et al. Phys. Rev. Lett. 121, 103903 (2018).

[2] S. B. Ivars et al. Phys. Rev. Lett. 126, 063903 (2021).

[3] S. B. Ivars et al. Nat. Photon. 17, 767 (2023).