

Chip-scale frequency combs

Abstract: Recent advances in photonic integration are creating renewed prospects for the realization of laser frequency combs on a chip, enabling applications that benefit from the potential for mass production and portability. In this tutorial will introduce some of the basics and foundations, and discuss advances in optical frequency synthesis and novel solutions for wafer-scale processing of chip-scale frequency combs using silicon photonics.



Lecturer : Victor Torres-Company is Professor at the Department of Microtechnology and Nanoscience (MC2). He obtained the PhD from the University of Valencia, Spain in 2008. Before joining Chalmers in 2012 he was a Postdoctoral Fellow at the Photonics Systems group in McGill University, Canada, and later a Marie Curie Research Fellow at Purdue University, USA. He

leads the research group Integrated Ultrafast Photonics at Chalmers, working on chip-scale frequency comb technology, coherent optical communications and nonlinear silicon photonics. Prof. Torres-Company has co-authored more than 100 papers in leading optics journals. He has been awarded twice a Marie Curie Fellowship, was the recipient of a Young Research grant from the Swedish Research Council in 2013, a European Research Council Consolidator Grant in 2017 and an ERC Advanced Grant in 2025. He is also co-founder of Solinide Photonics, and director of the excellence research center Metapix at Chalmers.