

SEMINARI

principi natura modello  
metodo

andezze valore **fisica** matematica generale spazio classica sistemi  
antistica materia **dati** fenomeni base studio  
sperimentale fondamentali esempio misura incertezze  
riferimento nucleare **teoria**



UNIVERSITÀ DEGLI STUDI  
DI TRENTO  
Dipartimento di Fisica

**Dott. Philippe Velha**

*Tenure track assistant professor at Department of Information Engineering and Computer  
Science - University of Trento*

**Tuesday 17<sup>th</sup> January 2023 - 11:00 a.m.  
Room A204 – Polo Ferrari 1**

## **Integrated Optics for telecommunication and sensing applications**

**Abstract:**

The ever-growing need for high-rate communications with ever denser nodes and smaller form factor is bringing communication requirements at the chip level towards what was once datacom and telecom specifications. Communication on a single silicon chip is pushing technological progress to the limit. On-chip optical communication can overcome the limits of electronics (e.g., electromagnetic interference, power consumption) that hinder the scaling to higher rates and longer propagation distances. Moreover, optics offer inherent mechanisms for multiplexing multiple transmissions, enabling higher capacity through parallelization.

In this seminar some examples of components, and integrated sub-system will be presented demonstrating the potential of integrated silicon photonics for telecommunication and other fields of applications like sensing applications.

**Contacts:**

Department of Physics  
Via Sommarive, 14  
38123 Povo, Trento  
[df.supportstaff@unitn.it](mailto:df.supportstaff@unitn.it)

**Scientific Coordinator:**  
prof. Lorenzo Pavesi