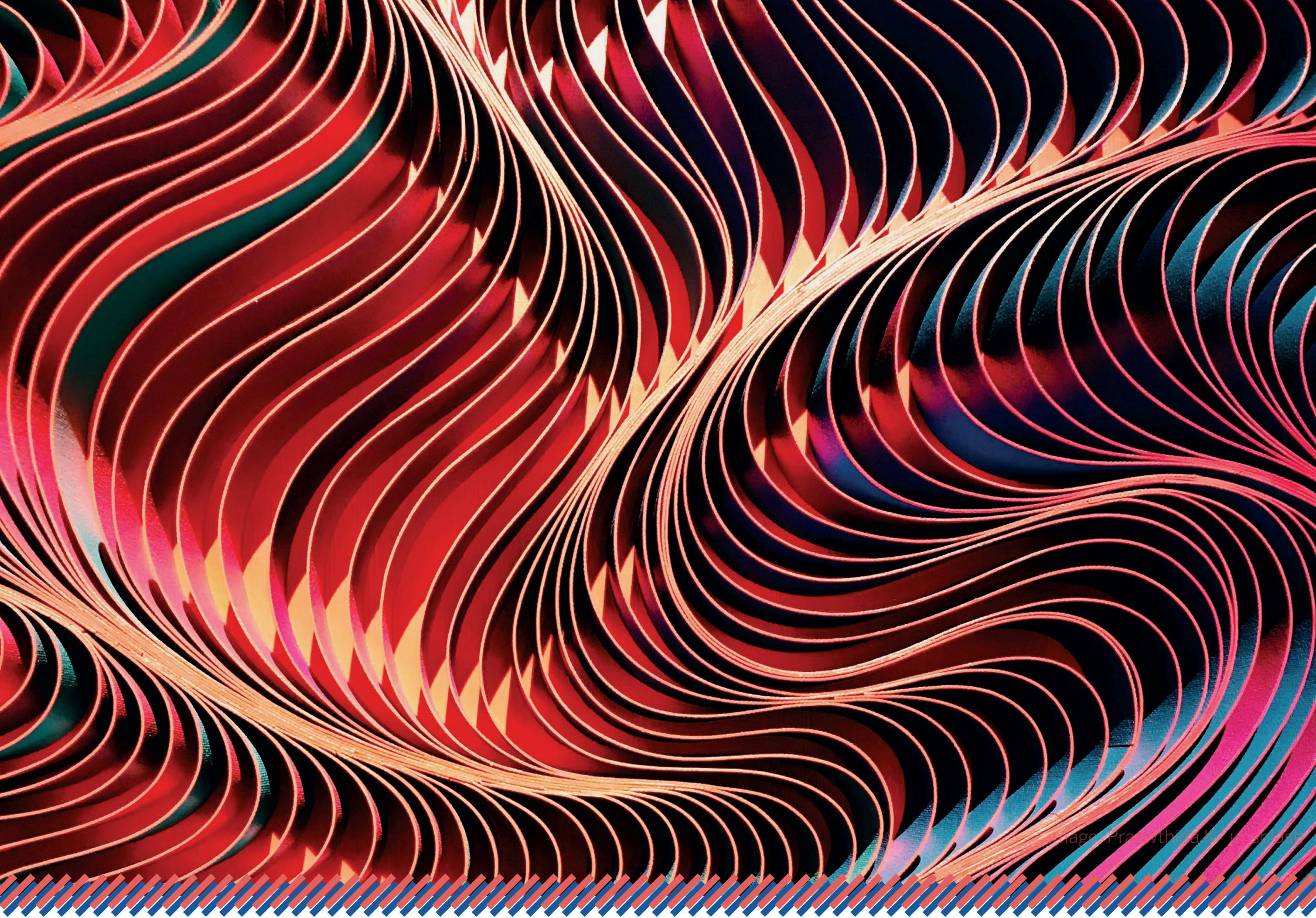




Ca' Foscari
University
of Venice

Department of
Molecular Sciences
and Nanosystems

Low dimensional material and devices for sensor applications: an interdisciplinary Approach

November 4, 2025, 3.00 pm

Orio Zanetto conference room

Alfa building, Scientific Campus, via Torino 155, Mestre

Antonio Cassinese

Department of Physics, University of Naples Federico II

The talk will report activities concerning devices based on low dimensional materials of interest for different applications, underlining an interdisciplinary approach.

Concerning quantum applications, after a brief description on high Q microwave cavities and on organic and 2D, the speaker will describe activities concerning the charge transfer of N-type organic materials in contact with metals or 2D materials and the improved performances of devices based on 2D doped materials (MoS₂, WS₂) as well as the realization of Van der Waals structures based on MoS₂ doped with organic molecules. It will be shown that Van der Waals long range potential can influence

the long range order of the molecular crystals creating a regular array of organic nanotubes. The properties of 3D cavities (TESLA SHAPE) will be also discussed especially when coupled with dielectric resonators of interest for the creation of quantum sensors that present better performances compared to those existing in the literature. The last part of the talk will summarize some ongoing activities in Naples regarding the detection of biomolecules, through the use of organic electrochemical transistors (OECTs) and screen-printed electrodes (SPE), as well as the development of gloves with several pressure sensors of interest for biological applications too.

Seminar organized by
prof. Giovanni Antonio
Salvatore