EUROPEAN CURRICULUM VITAE FORMAT

PERSONAL INFORMATION

Name	**CRISTIAN SONCINI**

EDUCATION AND TRAINING

• Dates (from - to)	November 2015 - July 2018
• Name and type of organisation providing education and training	Chemistry department, Photochemistry school, Photochemistry and molecular materials, University of Bologna
• Principal subjects/occupational skills covered	Chemistry of molecular and supramolecular systems, Nanotechnologies and spectroscopy of materials, Computational and Laser methodologies
• Title of qualification awarded	Master's degree

WORK EXPERIENCE

• Dates (from - to)	November 2018 – October 2022
• Name and address of the employer	CNR-IOM/ University of Trieste
• Occupation or position held	PhD Nanotechnology
• Main activities and responsibilities	Study of non-equilibrium phenomena in semiconductors and effects in spectroscopies: I focused my PhD activities on the characterization of the dynamic electronic properties of organic thin films and commercial inorganic substrates, by using spectroscopy and pump and probe techniques. I acquired experience in photoemission, inverse photoemission, X-ray absorption and optical absorption, including instrumentation development of UV detector for inverse photoemission. I have also been concerned about the non-equilibrium effect of photon and electron fluxes on the electronic properties at the surface/interface of inorganic semiconductors, developing a Matlab code that evaluates the surface (photo)voltage effect and models its evolution in time. I participate in the design and commissioning of an end station for time-resolved X-ray absorption measurements, currently mounted at the BACH Beamline of ELETTRA (Sincrotrone Trieste) through a long-term proposal (2021-2023). I was responsible for the laser layout and synchronization with the X-ray probe. Growth of nanostructured SiC on 6H-SiC was investigated through high-power laser irradiation, characterized by AFM.

• Dates (from - to)	March 2022 – To date
• Name and address of the employer	CNR-IOM
• Occupation or position held	Fellow (Assegno di Ricerca)
• Main activities and responsibilities	Study of non-equilibrium phenomena in semiconductors and effects in spectroscopies: characterization of the dynamic electronic properties of organic thin films and inorganic materials, by using spectroscopy and pump and probe techniques.

PERSONAL SKILLS AND COMPETENCES

MADRELINGUA **[Italiana]**

ALTRE LINGUA

[English]

• Capacità di lettura	EXCELLENT
• Capacità di scrittura	EXCELLENT
• Capacità di espressione orale	GOOD

TECHNICAL SKILLS AND COMPETENCES

Research interest includes the study of the structural, electronic and dynamic electronic properties of nanostructured and organic/inorganic semiconductor materials, by using microscopy, spectroscopy and time-resolved techniques. Specific skills were acquired through direct experience in off-line laboratories and several experimental activities performed at ELETTRA synchrotron facilities (BACH, ALOISA and CiPo beamlines) and the CITIUS facility for time-resolved photoemission (Nova Gorica, Slovenia):

- Growth of organic films by thermal evaporation method and surface treatment of standard substrates;
- Growth of nanostructured C-based materials
- Excellent knowledge of X-ray absorption, photoemission and inverse photoemission spectroscopies, and respective data analysis;
- Very good knowledge of pump and probe techniques: time-resolved X-ray absorption, time-resolved photoemission and transient absorption spectroscopies, and respective data analysis;
- Good knowledge of scanning probe microscopy techniques: atomic force microscopy and scanning tunnel microscopy/spectroscopy and respective data analysis.

Direct experience on the instrumentation, assembling and maintenance of ultra-high vacuum systems, detectors (multichannel plate and photodiode) and laser optical set-up for pump and probe spectroscopy acquired through participation in the commissioning of a new time-resolved X-ray absorption end-station at the BACH beamline.

DIGITAL AND PROGRAMMING EXPERTIES:

- Programs for data and image analysis: Igor, KolXPD, Origin, KaleidaGraph, Gwyddion, SPIP.
- Programming platforms: Matlab and RStudio. During the PhD I developed two Matlab codes: LEINEC, which evaluates the static and transient surface (photo)voltage effects in standard and time-resolved spectroscopies of inorganic semiconductors. XREM, is an auxiliary tool, to the new variable geometry x-ray absorption end-station at the BACH beamline, for the signal evaluation and optimization in static and time-resolved X-ray absorption spectroscopy experiments.

ADDITIONAL INFORMATION

Publications:

Published:
Soncini et al. *Electronic properties of carbon nanotubes as detected by photoemission and inverse photoemission. Nanotechnology 2021,* 32,105703.
:
Tuning 3C-SiC(100)/ Si(100) heterostructure interface quality. Crystal Growth & Design 2022, 22, 9, 5182–5188.

High-Resolution Photoemission Study of Neutron-Induced Defects in Amorphous Hydrogenated Silicon Devices". Nanomaterials 2022, 12, 19, 3466.