EUROPEAN FORMAT CURRICULUM VITAE

PERSONAL INFORMATION

Name: **CHRASTINA, Daniel**

E-mail: **daniel.chrastina@polimi.it**

Profile: http://lness.como.polimi.it/danielchrastina.php

WORK EXPERIENCE

• Date (from – to): 7-1-2019 – present

• Name and address of employer: L-NESS Politecnico di Milano, Via Anzani 42, 22100 Como, Italy

• Type of company or sector: University

• Type of employment: Associate Professor

• Main tasks and responsibilities:

Development of epitaxial technology for micro- and optoelectronics, and for thermoelectrics: growth of silicon germanium structures by "low-energy plasma-enhanced chemical vapour deposition" (LEPECVD), and structural characterization by x-ray diffraction and atomic force microscopy, and electrical characterization. This work also regarded the European Commission FP7 project "Gemini" (Germanium mid-infrared plasmonics for sensing), the ERC Starting Grant "INsPIRE" (Chip-scale INtegrated Photonics for the mid-Infra REd) and the Open Innovation Lombardia project "TEINVEIN" (Innovative technologies for intelligent vehicles).

Epitaxial technology for microelectronics – quantum well structures for FET devices based on strained SiGe and Ge channels.

Epitaxial technology for optoelectronics – local straining of Ge layers for infra-red emission.

Structural characterization by x-ray diffraction – identification of strain related to lattice and thermal mismatch, interdiffusion, segregation, elastic and plastic relaxation, dynamical simulations, complemented by analysis of Raman and micro-Raman spectroscopy.

Electrical characterization – magnetoresistance and Hall effect measurements at room temperature and low temperature; calculation of mobility based on scattering mechanisms.

Manager of the teaching and research activity (RADRL) of the electrical measurement laboratory of the L-NESS.

Supervision of undergraduate and PhD students (see Teaching Experience section).

• Date (from – to)	7-1-2016 – 6-1-2019 (senior researcher) 1-6-2014 – 6-1-2016 (junior researcher)
• Name and address of employer	L-NESS Politecnico di Milano, Via Anzani 42, 22100 Como, Italy
• Type of company or sector	University
• Type of employment	Researcher (Ricercatore a tempo determinato "senior" [art. 24 comma 3 Legge 30.12.2010, n. 240]) (Ricercatore a tempo determinato "junior" [art. 24 comma 3 Legge 30.12.2010, n. 240])
• Main tasks and responsibilities	Development of epitaxial technology for micro- and optoelectronics, and for thermoelectrics: growth of silicon germanium structures by "low-energy plasma-enhanced chemical vapour deposition" (LEPECVD), and structural characterization by x-ray diffraction and atomic force microscopy, and electrical characterization. This work also regarded the European Commission FP7 project "Gemini" (Germanium mid-infrared plasmonics for sensing), the ERC Starting Grant "INsPIRE" (Chip-scale INtegrated Photonics for the mid-Infra REd) and the Open Innovation Lombardia project "TEINVEIN" (Innovative technologies for intelligent vehicles). Epitaxial technology for microelectronics – quantum well structures for FET devices based on strained SiGe and Ge channels. Epitaxial technology for optoelectronics – local straining of Ge layers for infra-red emission. Structural characterization by x-ray diffraction – identification of strain related to lattice and thermal mismatch, interdiffusion, segregation, elastic and plastic relaxation, dynamical simulations, complemented by analysis of Raman and micro-Raman spectroscopy. Electrical characterization – magnetoresistance and Hall effect measurements at room temperature and low temperature; calculation of mobility based on scattering mechanisms. Manager of the teaching and research activity (RADRL) of the electrical measurement laboratory of the L-NESS. Supervision of undergraduate and PhD students (see Teaching Experience section).

• Date (from – to)	16-2-2009 – 15-2-2014
• Name and address of employer	L-NESS Politecnico di Milano, Via Anzani 42, 22100 Como, Italy
• Type of company or sector	University
• Type of employment	Researcher (Ricercatore a tempo determinato [art.1 comma 14 L. 230/05])
• Main tasks and responsibilities	Development of epitaxial technology for micro- and optoelectronics, and for thermoelectrics: growth of silicon germanium structures by "low-energy plasma-enhanced chemical vapour deposition" (LEPECVD), and structural characterization by x-ray diffraction and atomic force microscopy, and electrical characterization. This work regards the CARIPLO Foundation projects "MANDIS", "NanoGAP" and "DefCon4" and the European Commission project "GREENSi". Management of the project "DefCon4" as head of the Polimi research unit, in collaboration with the electron-beam lithography and nanoscale device group of the L-NESS, and the Raman spectroscopy group of the University of Milan-Bicocca. DefCon4 (Nanostructures for the Deformation Control of Group-IV Epilayers and Membranes) considers the growth of group-IV semiconductors SiGe and Ge on Si substrates, and the use of nano-fabrication to realize structures which lead to locally stressed regions for electrical and optical devices. The nanostructures are studied by atomic-force and electron-beam microscopy, micro-Raman spectroscopy, and synchrotron x-ray micro-diffraction. Manager of the teaching and research activity (RADRL) of the cleanroom of the L-NESS.

• Date (from – to)	1-1-2008 - 15-2-2009
• Name and address of employer	L-NESS Politecnico di Milano, Via Anzani 42, 22100 Como, Italy
• Type of company or sector	University
• Type of employment	Contract of collaboration
• Main tasks and responsibilities	Development of epitaxial technology for micro- and optoelectronics within the CARIPLO project "SIMBAD": growth of silicon germanium structures by LEPECVD, and structural characterization by x-ray diffraction and atomic force microscopy.
• Date (from – to)	1-2-2007 - 31-12-2007
• Name and address of employer	L-NESS Politecnico di Milano, Via Anzani 42, 22100 Como, Italy
• Type of company or sector	University
• Type of employment	Contract of collaboration

• Main tasks and responsibilities	Development of waveguides based on SiGe layers on Si within a PRIN project: growth of silicon germanium structures by LEPECVD, and structural characterization by x-ray diffraction and atomic force microscopy.
• Date (from – to)	1-5-2005 - 31-1-2007
• Name and address of employer	L-NESS Politecnico di Milano, Via Anzani 42, 22100 Como, Italy
• Type of company or sector	University
• Type of employment	Contract of collaboration
• Main tasks and responsibilities	Development of epitaxial technology for micro- and optoelectronics within the CARIPLO project "TESEO": growth of silicon germanium structures by LEPECVD, and structural characterization by x-ray diffraction and atomic force microscopy, and electronic characterization.
• Date (from – to)	1-2-2002 - 30-4-2005
• Name and address of employer	L-NESS Politecnico di Milano, Via Anzani 42, 22100 Como, Italy
• Type of company or sector	University
• Type of employment	Post-doctoral research
• Main tasks and responsibilities	Development of epitaxial technology for the economical production of material for the semiconductor industry within the European Commission project "ECOPRO": growth of silicon germanium structures by LEPECVD, and structural characterization by x-ray diffraction and atomic force microscopy, and electronic characterization.

COLLABORATIONS

• Date (from – to)	30-4-2007 - 31-12-2007
• Name and address of employer	L-NESS Politecnico di Milano, Via Anzani 42, 22100 Como, Italy
• Type of company or sector	University
• Type of employment	Collaboration
• Main tasks and responsibilities	During this period the candidate contributed to the European Commission project "NANOPHOTO" for the growth of micro- and nano-crystalline silicon for photovoltaic devices and solar cells, and took part in a collaborative project with CoreCom and Pirelli for Ge/Si and Ge/SOI photodiodes.

TEACHING EXPERIENCE

• Date (from – to)	18-9-2019 – 31-10-2018
• Work and position covered	Lectures at the Politecnico di Milano for the Nanodevice Characterization 2nd-year master's course for Engineering Physics (Ingegneria Fisica).
• Name of institution	Politecnico di Milano
• Date (from – to)	30-4-2019 – 6-6-2019
• Work and position covered	Lectures at the Politecnico di Milano, Bovisa campus, for the Experimental Physics part B course for students of Aeronautical Engineering, Energy Engineering, and Mechanical Engineering (Ingegneria Aerospaziale, Ingegneria Energetica, Ingegneria Meccanica).
• Name of institution	Politecnico di Milano
• Date (from – to)	17-9-2018 – 24-10-2018
• Work and position covered	Lectures at the Politecnico di Milano for the Nanodevice Characterization 2nd-year master's course for Engineering Physics (Ingegneria Fisica).
• Name of institution	Politecnico di Milano
• Date (from – to)	3-5-2018 – 7-6-2018
• Work and position covered	Lectures at the Politecnico di Milano, Bovisa campus, for the Experimental Physics part B course for students of Aeronautical Engineering, Energy Engineering, and Mechanical Engineering (Ingegneria Aerospaziale, Ingegneria Energetica, Ingegneria Meccanica).
• Name of institution	Politecnico di Milano
• Date (from – to)	8-5-2017 – 15-6-2017
• Work and position covered	Lectures at the Politecnico di Milano, Bovisa campus, for the Experimental Physics part B course for students of Aeronautical Engineering, Energy Engineering, and Mechanical Engineering (Ingegneria Aerospaziale, Ingegneria Energetica, Ingegneria Meccanica).
• Name of institution	Politecnico di Milano

• Date (from – to)	3-10-2016 – 17-11-2016
• Work and position covered	Lectures at the Politecnico di Milano, Como campus, for the Nanodevice Fabrication and Characterization 2nd-year master's course for Engineering Physics (Ingegneria Fisica).
• Name of institution	Politecnico di Milano
• Date (from – to)	14-3-2016 – 21-6-2016
• Work and position covered	Exercise classes at the Politecnico di Milano, Bovisa campus, for the Experimental Physics course for students of Aeronautical Engineering, Energy Engineering, and Mechanical Engineering (Ingegneria Aerospaziale, Ingegneria Energetica, Ingegneria Meccanica).
• Name of institution	Politecnico di Milano
• Date (from – to)	5-10-2015 – 19-11-2015
• Work and position covered	Lectures at the Politecnico di Milano, Como campus, for the Nanodevice Fabrication and Characterization 2nd-year master's course for Engineering Physics (Ingegneria Fisica).
• Name of institution	Politecnico di Milano
• Date (from – to)	11-3-2015 – 25-6-2015
• Work and position covered	Exercise classes at the Politecnico di Milano, Como campus, for the Experimental Physics course for students of Civil and Environmental Engineering (Ingegneria Civile e Ambientale).
• Name of institution	Politecnico di Milano
• Date (from – to)	7-10-2014 – 30-1-2015
• Work and position covered	Exercise classes at the Politecnico di Milano, Leonardo campus, for the Experimental Physics course for students of Chemical Engineering and Materials Engineering (Ingegneria Chimica, Ingegneria del Materiali).
• Name of institution	Politecnico di Milano
• Date (from – to)	12-3-2014 – 19-6-2014
• Work and position covered	Exercise classes at the Politecnico di Milano, Como campus, for the Experimental Physics course for students of Civil and Environmental Engineering (Ingegneria Civile e Ambientale).
• Name of institution	Politecnico di Milano
• Date (from – to)	15-10-2013 – 30-1-2014
• Work and position covered	Exercise classes at the Politecnico di Milano, Bovisa campus, for the Experimental Physics course for students of Management and Industrial Engineering (Ingegneria Gestionale).
• Name of institution	Politecnico di Milano
• Date (from – to)	2-10-2006 – 25-1-2007
• Work and position covered	Teaching seminars for the course in micro and nanotechnology – Master's degree in Physics Engineering.
• Name of institution	Politecnico di Milano
• Date (from – to)	1-2-2004 – present
• Work and position covered	Co-supervision of PhD theses. Supervision, co-supervision and examination of master's theses and project laboratory theses.
• Name of institution	Politecnico di Milano

EDUCATION AND QUALIFICATIONS

• Date	2012
• Sector	02/B1 “Fisica Sperimentale della Materia”
• Qualification received	National scientific qualification (“Abilitazione”) for Associate Professorship, with the following result: “VN = 45. The other qualifications presented are of an excellent level (A). The evaluation of the commission of the total activity of the candidate, coherent with the sector of the concourse, is: excellent (A)” *“VN = 45. Gli altri titoli presentati sono di livello eccellente (A). La valutazione collegiale della Commissione sull'attività complessiva del Candidato coerente con il settore concorsuale e': eccellente (A).”*

• Date (from – to)	1-10-1997 - 31-1-2002
• Name and type of teaching institution	Department of Physics, University of Warwick, Coventry CV4 7AL, United Kingdom
• Principle subject	Physics
• Qualification received	PhD.

• Date (from – to)	1-10-1993 - 31-7-1997
• Name and type of teaching institution	St. Catharine’s College, Cambridge University, Cambridge CB2 1RL, United Kingdom
• Principle subject	Natural Sciences (Physics)
• Qualification received	M.Sci. and M.A. (Hons)

PERSONAL ABILITIES AND SKILLS

PRINCIPLE LANGUAGE	**ENGLISH**
OTHER LANGUAGES	
	ITALIAN
• Reading	EXCELLENT
• Writing	VERY GOOD
• Oral	EXCELLENT
	GERMAN
• Reading	ELEMENTARY
• Writing	ELEMENTARY
• Oral	ELEMENTARY
INTERPERSONAL ABILITIES	During work experience, often within international environments: group working, collaboration with external entities, management of suppliers.
ADMINISTRATIVE ABILITIES	Management of orders and suppliers. Establishment of technical and administrative relationships.
TECHNICAL ABILITIES	Management of the 100 mm “LEPECVD” tool at the L-NESS, and management and development of the 200 mm “LEPECVD” tool at the L-NESS. Management of the high-resolution x-ray diffractometer. Management of nano- and micro-diffraction experiments at the European Synchrotron Radiation Facility (ESRF) in Grenoble. Management of the superconducting cryo-magnetic system. Management of computing resources within the SiGe laboratory of the L-NESS. Programming ability in bash, c, and python languages, and knowledge of the linux operating system. Skills in structural characterization by x-ray diffraction and atomic-force microscopy. Skills in electronic characterization. Skills in sample etching and cleaning procedures. Skills and awareness regarding correct cleanroom procedures.
ARTISITIC ABILITIES	Classical and modern guitar, piano, jazz/swing dancing.
DRIVING LICENCE	B

REFERENCES

Prof. Dr. Hans von Känel
Laboratory for Solid State Physics
ETH-Zürich, Schafmattstrasse 16
CH-8093 Zürich
Switzerland
Tel: +41 44 633 22 61

Prof. Giovanni Isella
L-NESS Department of Physics
Politecnico di Milano
22100 Como
Italy
Tel: +39 031 332 7303