Europass Curriculum Vitae

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Claudia Wiemer
Bibliometric indexes

Number of publications:	144
H index:	26 (WoS), 31 (Google Scholar)
Times cited:	2212 (WoS) 2936 (Google Scholar)

References Prof **Francis Lévy** (EPFL, Switzerland, PhD Tutor); Prof **Marco Fanciulli** (University of Milano Bicocca, Italy, group leader); Prof **Piero Pianetta** (Stanford University, U.S.A., group leader); Prof **Jean Luc Battaglia** (University of Bordeaux, France, collaborator); Prof. **Oliver Thomas** (Université de Marseille, France, collaborator); Dr. **Simon Elliott** (Schrodinger, Ireland, collaborator); Dr **Grazia Tallarida** (IMM CNR, UOS Agrate Brianza, Italy, current group leader).

Desired employment/ Occupational field **Physics, Material Science, Engineering**
Thin films and coatings deposition and characterization for different applications

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Work experience

Dates	From April 2008 till now
Occupation posiion held	**Permanent researcher at CNR. III Level,** at UOS di Agrate Brianza IMM Institute
Main activities and responsibilities	Since 2016, representative for the UOS of the characterization of materials and devices. Since 2001, in charge for the UOS of the X-ray diffraction and X-ray reflectivity laboratory. Research in the field of materials for applications in microelectronics. Vice coordinator of COST action MP1402 HERALD (Hooking together European research in ALD), vice coordinator of project LAB4MEMSII (ENIAC call 2014), participation to different H2020 and FP7 projects. Coordinator of the European Project Chemaph (FP7), responsible for CNR of a PRIN project. Coordinator of a bilateral project between Italy and France, supported by the French-Italian University. In the contest of a commercial contract with Micron, and STMicroelectronics responsible of the X-ray characterization of high dielectric constant materials. Participant to the international project VAMAS for the standardization of X-ray reflectivity measurements. Partecipant to a metrology project: IND07, Metrology for the manufacturing of thin films, Joint Research Project to the European Metrology Research Programme (EMRP) call 2010 Industry (IND) , Reviewer for IOP, ACS and Nature journals Reviewer for EURAMET, and Italian, Finnish, Dutch, Belgian calls
Name and address of the employer	**UOS di Agrate Brianza, IMM, CNR,** via C. Olivetti 2 20864 Agrate Brianza (MB) Italy

Type of business or sector	Coordination of the research in the field of phase change materials, collaboration with the industrial partners Stmicroelectronics and Micron. Responsible of the characterization of oxide and chalchogenide thin layers for applications in microelectronics. Participation and coordination of National and European projects. Supervision of master and Ph D students. Study of thin films and nanostructures for microelectronic applications. Academic research with strong interaction with industry
Dates	February 2003-April 2008
Occupation position held	**Temporary researcher at CNR. III Level,** at UOS di Agrate Brianza IMM Institute, in the past this UOS was the National laboratory MDM, INFM (National Institute for the Physics of Matter).
Main activities and responsibilities	In charge for the UOS of X-ray diffraction and X-ray reflectivity analyses. Research in the field of materials for microelectronics. Responsible in the framework of the commercial contract with Micron of the characterization activities on high dielectric constant oxides. Involved in several European projects on the 5th and 6th framework. Coordinator of the European project Chemaph (FP7). Development of novel chalcogenide layers for phase change memory applications by MOCVD technique.
Name and address of the employer	**UOS di Agrate Brianza, IMM, CNR,** via C. Olivetti 2 20864 Agrate Brianza (MB) Italy
Type of business or sector	Research in the field of materials for microelectronics, specifically in the sector of thin films and their structural characterization by X-ray diffraction and reflectivity.
Dates	September 2000-February 2003
Occupation position held	**Assegnista di ricerca (Post doctoral contract) at Laboratorio MDM dell'INFM**, now UOS di Agrate Brianza dell'Istituto IMM
Main activities and responsibilities	Responsible for X-ray characterization of materials for microelectronics, X-ray diffraction and X-ray reflectivity.
Name and address of the employer	CNR, UOS di Agrate Brianza, IMM, via C. Olivetti 2 20864 Agrate Brianza (MB) Italy
Type of business or sector	Research in the field of transition metal oxides for gate dielectrics. X-ray characterization. Development of an especially designed X-ray tool for materials for microelectronics ESQUI (FP4).
Date	December 1997-December 1998
Lavoro o posizione	**Visiting Scientist at Stanford University, Stanford, California, USA.**
	Work at a beamline at Stanford Synchrotron radiation laboratory. Total reflection x-ray fluorescence characterization of substrates and thin films for the microelectronic industry. Stanford University, 450 Serra Mall, Stanford, CA 94305 USA.
	Industrial research

Design of innovative X-ray facilities

In the framework of CHEMAPH, project, in **2007**, I've developped, together with UNiversity of Trento, an instrument for the **simultaneous analysis of X-ray fluorescence in geometry of total external reflection and X-ray reflectivity**. The instrument allows the simultaneous acquisition of both X-ray relfectivity and fluorescence and thanks to ad hoc designed software (http://www.ing.unitn.it/~maud/maud/maudWebStart.html), it is possible to model the depth profiling of the chemical composition

In the framework of the european project ESQUI, (**2000-2003**), I participaterd as a post doc to the development of an **innovative X-ray diffraction system expecially designed for the analysis of thin films**. The system can mount 8'' wafers. The instrument is equipped with a Goebel mirror (at that time it was a very innovative monochromator) that allows to have a very intense and parallel beam.The instrument has a 4 circle goiniometer, a scintillator and a position sensitive detector (curved gas detector). The specular X-ray reflectivity is acquired with the scintillator, whereas the position sensitive detector allows to acquire on 120 °.

In the framework of a PRIN project, (**2010-2012**), I've improved this instrument with **a heating system for the acquisition of diffraction and reflectivity spectra as a function of temperature**. In particular, thanks to the position sensitive detector, the acquisition of diffraction spectra is very effective. This system can go up to 1000 °C in N_2 atmosphere, was especially designed together with Anton Paar in order to be able to work with two domes up to 600 °C, so that to be able to access, if necessary all the 2theta range (up to 600 °C) by changing the dome.

X-ray proposals at Synchrotrons

Advanced research has been pursued by experiments at ESRF. One additional beam time at Elettra has been recently won. Experiments have been conducted in order to go beyond was was done in the laboratory and were (almost) always successfull experiments.

Proposal SISSI mat science beamline: December 5-12 2017 THz experiment on topological insulators
Proposal MA-3365 beamtime April 20-25 2017 Nano Laue analysis of chalcogenide nanowires
Proposal MA-2467 beamtime March 4-8 2015 Structural analysis of ultrathin Al2O3 annelad at high temperatures material Proposal MA-2234 beamtime March 3-18 2014 structural analysis of ultrathin films of Er-HfO2
Proposal MA-1208 beamtime dal June 14 al 21 2011 exafs atEr 3+ threshold in Er-HfO2 thin films
Proposal MA-1203 beamtime March 02-07 2011 Structural (XRD) analysi of ultrathin di Er-HfO2
Proposal MA-1052 beamtime April 03-07 2010 Structural analysis of ultrathin La-ZrO2

Responsabilities

Machine maintenance: alignment, change of tube, optimization, change of parts, beam optimization of the two hard X-ray systems at the UOS

Training of new users on X-ray instrumentation (lfor a total of 20 people), responsible of different contracts with industry for the characterization of material and thin films

Teaching: to undergraduades at EPFL during PhD

Tutoring of national and international students:

2016-Studente di Laurea, visiting scholar, Tom Chaloin, Université de Grenoble, terzo anno, 3 months stage in 2016,
2016-PhD Thesis, **Maria Berdova** di Aalto University, Helsinki, Finland, visiting scholar at IMM-CNR from 01-10-2015 to 01-04-2016,
2015-PhD Thesis **Tan Nguyen**, dottorato in cotutela with Università di Bordeaux, within a project of 'Università Italo-francese (Progettto VINCI) between Università di Bordeaux and Università di Milano Bicocca Dissertation: 10/07/2015, per partecipazione a Jury de Thèse
2012-PhD Thesis di **Andrea Cappella**, Presented at Université de Bordeaux, École Doctorale Des Sciences Physiques Et De L'ingénieur Pour Obtenir Le Grade De Docteur Spécialité: Mécanique & Énergétique. Thesis title: "*Caractérisation Thermique À Haute Température De Couches Minces Pour Mémoires À Changement De Phase Depuis L'état Solide Jusqu'à L'état Liquide*", co-tutored PhD and participation to the exam
2011-Studente di Laurea, visiting scholar, **Orianne Schweitzer** Université de Grenoble, third year, 3 months stage
2007-2009-Studente di dottorato **Luca Lamagna**, Università di Milano Bicocca, relatore interno Prof. Marco Fanciulli, titolo della tesi: *Atomic Layer deposition and characterization of rare earth oxides for innovation in microelectronics*
2007-Studente di Laurea **Roberto Fallica**: studente di Ingegneria Elettronica del Politecnico di Milano
Tipologia di tesi: tesi di laurea magistrale (vecchio ordinamento) in Ingegneria Elettronica, anno 2007, titolo tesi: *Caratterizzazione elettrica e termica di materiali a cambiamento di fase per memorie non volatili.*

Technical skills

Fitting of X-ray reflectivity, specular and off specular, fitting of X-ray diffraction patterns by Rietveld refinement, texture analysis analysis of Laue patterns. Software Maud, Bede, and software available at the synchrotron. Simulation of crystallographic structures by software Carine.

Physical deposition by magnetron sputtering or e beam evaporation of thin films and coatings, **Chemical deposition** by atomic layer deposition and metalorganic chemical vapour deposition.

X-ray machines maintenance: change of tube, beam optimization, alignment, replacement of parts

Prizes

R.F. Bunshah award of Vacuum metallurgy division dell'American Vacuum Society, 30/04/1994Best paper at: International conference on metallurgical coatings and thin films (ICMCTF), Sandiego, April 1994

Education and training

Dates	November 1992-August 1996
Title	**Ph. D. in Physique Appliquée (**Ph D in Applied Physics)
Acquired knowledge	Deposition by magnetron sputtering, structural and mechanical characterization of hard transition metal nitrides thin films.
School	Ecole Polytechnique Fédérale de Lausanne, Lausanne (CH)

International or national level: The publication level was ranked in the first quater of Ph D students

Dates: Ottobre 1988-Agosto 1992

Title: **Laurea in Fisica, 110/110 e lode, università degli studi di Milano (Italy)**

Invited contributions at International Conferences and organization of Conferences 7 Symposia

Invited contributions:

11-C. Wiemer, Optical and Structural Properties of Low Temperature HfO_2 for Micromirror Applications, China Atomic Layer Deposition Conference, Shenzhen, October 2018

10-C. Wiemer, Advanced protective coatings by low temperature atomic layer deposition of HfO2 on Al surfaces for micro-mirror applications,Thematic workshop at ESSDERC-ESSCIRC 2016, Lausanne, 2016

9-C. Wiemer, Advantages and disadvantages, comparison with other thin film deposition techniques, e: Relationships between process parameters, structural and electrical properties in ALD oxydes alla: International summer school "Atomic Layer Deposition: Method and Applications, Brescia, 10-15 Luglio 2015

8-C. Wiemer, Hf and Zr –based very high dielectric constant oxides for logic and memory applications, E-MRS 2012, Strasbourg

7-C. Wiemer, Phase change materials for random access memories: deposition,characterization and performance, AVS 2010, Albuquerque, October 19th, 2010.

6-C. Wiemer, Material perspectives for phase change memories: the role of chemical composition, deposition method, and interfaces on the thermal properties of the chalcogenide material and of its interfaces, MRS 2010, Spring Meeting, San Francisco, April 2010

5-C. Wiemer, Chemical vapor deposition of chalcogenide materials for next generation phase change memory devices, International Workshop on Emerging Non-Volatile Memories, Genova, July 31st 2009

4-C. Wiemer, Chemical vapor deposition of chalcogenide materials for next generation phase change memory devices, Innovative Mass Storage Technologies Workshop, Leuven, 26-29 November 2008

3-C. Wiemer, Chemical Vapor Deposition of Chalcogenide Materials for Phase Change Memories, International Workshop on Emerging Non-Volatile Memories, Munchen, September 14th 2007

2-C. Wiemer, Probing interfaces by x-ray reflectivity, a real case, Workshop tematico: Advances in thin films characterization by X-ray, September 11-13 2002, Genova, Italia

1- C. Wiemer, invited presentation at International conference on metallurgical coatings and thin films, ICMCTF, AVS, San Diego (CA), 1997

Organization of symposia and conferences:

2018 Organization Workshop Atomic layer deposition for Back-end of the line processes II, within the COST action HERALD (see projects),

2018 Organization international conference MAM: Materials for advanced metallization, Milano, March 2018

2017 Organization simposio Q: Synchrotron Radiation and Atomic Layer Deposition for Advanced Materials, a E-MRS fall meeting, Warsaw, 18-21/09/2017

2016 Organization Workshop Atomic layer deposition for Back-end of the line processes, withn the COST action HERALD, Bruxelles (March 20-23 2016)

Since 2013 Member of the sceintific committee of MAM, Materials for advanced metallizations, years: 2013 2014 2015 2016 2017 2018

2008 Organization simposio H Materials and emerging technologies for non-volatile-memory devices a E-MRS 2008, Strasbourg, 26/05/2008,

Personal Skills

Mother Tongue: Italian

Other languages:

	Understanding		Speaking		Writing
	listening	reading	spoken interaction	spoken production	
French	C2	C2	C2	C2	C2
English	C2	C2	C1	C2	C1
German	A2	A2	A2	A2	A1

A1/A2:Basic User; B1/B2: Independent User C1/C2: Proficient User

Communication skills: I can work in team, either personal or remotely. I can communicate with different kind of professional entities like industry, academic or funding agencies. I can work with people of different levels, including students, early carriers or more experienced people. Experience with phone conference meetings and other form of remote meetings including skype and webex.

Managerial skills: I was coordinating different kind of projects (European and National). Ability to make collaborators committed on a common goal. Organization of conferences (see previous section) with close to 200 attendees

Computer skills: Competent with most of the microsoft based softwares. Basic knowledge of Matlab.

Driving licence: Italian Driving licence B.