

CURRICULUM VITAE



INFORMAZIONI PERSONALI

Nome
Indirizzo Ufficio
Telefono
Fax
E-mail
Nazionalità
Data di nascita

Mongera Andrea

ESPERIENZA LAVORATIVA

- Date (da – a)
- Nome e indirizzo del datore di lavoro
- Tipo di azienda o settore
- Tipo di impiego
- Principali mansioni e responsabilità

Gennaio 2001 – in corso

Università degli Studi di Trento

Università statale

Dirigente (Dirigente di ruolo a tempo indeterminato da aprile 2006)

Responsabile del settore ICT dei servizi di Ateneo (oggi *Direzione Sistemi Informativi, Servizi e Tecnologie Informatiche*) - Incarico affidato con decreto DG n. 21 dd 28/12/2012

In particolare il ruolo prevede:

- supporto alla Direzione Generale per l'elaborazione di piani e programmi di sviluppo del settore dei servizi ICT
- gestione finanziaria, tecnica e amministrativa delle risorse umane e strumentali assegnate alla Direzione per la manutenzione e sviluppo dei Sistemi Informativi d'Ateneo, dei servizi e delle piattaforme tecnologiche di supporto, della rete di telecomunicazioni integrata, della sicurezza informatica, dei servizi Web, delle applicazioni per il Sistema Bibliotecario di Ateneo
- gestione dell'acquisizione dei beni e servizi informatici di interesse generale, dei sistemi e servizi di telecomunicazione fissa e mobile
- elaborazione di consuntivi periodici circa i risultati conseguiti

- Date (da – a)
- Tipo di impiego
- Principali mansioni e responsabilità

Novembre 1993 – dicembre 2000

Coordinatore Generale di Servizi – Il Qualifica Funzionale RST

Responsabile Ripartizione Servizi Informatici, Telematici e Multimediali

Il ruolo ha comportato l'attuazione di una nuova strategia organizzativa, deliberata dagli organi accademici, basata sulla creazione di servizi locali presso ogni sede (i Presidi Informatici, telematici e multimediali) ed una progressiva centralizzazione di funzioni e servizi comuni (Aree trasversali per la rete di comunicazione, l'automazione amministrativa, le applicazioni per la biblioteca, l'alfabetizzazione informatica ECDL, i servizi di produzione multimediale, gli acquisti di beni, servizi e licenze software di tipo Campus), garantendo i vantaggi di un coordinamento unico dell'intero settore in Ateneo e salvaguardando una costante relazione con i bisogni dell'utenza.

- Date (da – a)
- Tipo di impiego
- Principali mansioni e responsabilità

Novembre 1984 – Novembre 1993

Direttore di Centro – Funzionario Elaborazione Dati

Direttore C.I.S.C.A. - Centro Interdipartimentale Servizi per il Calcolo Automatico – Facoltà di Scienze

Il ruolo ha previsto la responsabilità, fin dalla sua istituzione, di un Centro di Servizi d'Ateneo creato per valorizzare risorse tecnologiche e competenze professionali nel settore del calcolo avanzato. Tra i principali risultati, l'installazione e messa in produzione di innovativi sistemi hardware e software per l'elaborazione in ambito scientifico, quali i primi sistemi cluster su rete locale, la prima rete Ethernet in Ateneo, il primo sistema nazionale di LAN estesa via link satellitare (tra la Facoltà di Scienze (TN) - SISSA (TS) — CIRA (NA) — CINECA (BO)) per la visualizzazione remota in tempo reale di elaborazioni grafiche da supercomputer CRAY.

- Date (da – a)
- Nome e indirizzo del datore di lavoro
- Tipo di impiego
- Principali mansioni e responsabilità

Agosto 1983 – Ottobre 1984

Istituto Trentino di Cultura - IRST

Assegnista di Ricerca

Ricercatore del gruppo di Biofisica Medica

Nell'ambito dell'attività di ricerca applicata sono stati progettati e sviluppati dei prototipi di sistemi a microprocessore per l'analisi automatica di segnali elettrocardiografici utilizzati nella clinica e nella ricerca biomedica, i cui risultati sono stati pubblicati anche su riviste internazionali.

ISTRUZIONE E FORMAZIONE

• Date (da – a)
• Nome e tipo di istituto di istruzione o formazione
Qualifica conseguita

2004 – 2006
Politecnico di Milano

Master Universitario di II° livello in Management dell'Università e della Ricerca – votazione 110/110 e Lode

• Date (da – a)
• Nome e tipo di istituto di istruzione o formazione
Qualifica conseguita

1977 – 1982
Libera Università degli Studi di Trento

Dottore in Fisica, votazione 110/110 e Lode

CAPACITÀ E COMPETENZE PERSONALI

MADRELINGUA

ITALIANO

ALTRE LINGUE
INGLESE
TEDESCO

Avanzato
Elementare

ULTERIORI INCARICHI

Università degli Studi di Trento:

- Responsabile per la transizione alla modalità operativa digitale, ai sensi dell'art. 17 del D.Lgs. 7 marzo 2005, n. 82 e s.m.i. (da aprile 2018)
- Commissione del Senato Accademico per l'applicazione del Codice Etico d'Ateneo – membro interno (da ottobre 2014).
- Start up accademico Intellegit srl - Rappresentante nel Consiglio di Amministrazione (da luglio 2015 a settembre 2017).
- Responsabile della Continuità operativa d'Ateneo ai sensi del D.Lgs n.82/2005 'Codice dell'Amministrazione Digitale' (da aprile 2012).
- Consiglio di Amministrazione - rappresentante del personale tecnico e amministrativo nel triennio 1988-1990.

CINECA

Membro del Panel dei Dirigenti dei Sistemi Informativi (ex Comitato Tecnico, membro dal 1990), di vari Gruppi di Lavoro e Focus group

CODAU

membro cofondatore del Gruppo di Lavoro ICT del Convegno dei Direttori generali delle Università (dal 2009)
eletto nel Collegio dei Dirigenti quale rappresentante Dirigenti a contratto del Nord Italia, (2005- 2008)

Provincia Autonoma di Trento:

Comitato per la Digitalizzazione della PA – rappresentante dell'Università di Trento (da luglio 2017).

Membro del Tavolo provinciale per il Data Center Unico Territoriale DCUT (2013-2016).

Consulente tecnico per l'esame delle richieste di contributo nel settore Ricerca Tecnologica industriale.

A.R.I. - Associazione Radioamatori Italiani

Presidente del Comitato Regionale Trentino Alto Adige / Südtirol da ottobre 2017; Presidente della Sezione di Trento nei trienni 2007-2009; 2010-2012, docente responsabile dei corsi aspiranti radioamatori.

Vari:

formatore sui temi dell'impatto delle normative - in particolare Privacy e sicurezza informatica - sulle procedure amministrative e sui processi informatizzati nella Pubblica Amministrazione nell'ambito di Master, corsi e seminari presso varie Università, per il consorzio interuniversitario CO.IN.FO. (TO), per la Fondazione CUOA di Altavilla Vicentina (VI). Membro di Commissioni di concorso pubblico presso varie Università italiane. Panelist in convegni e workshop nazionali in ambito ICT. Sergente di complemento, 4° Corpo d'Armata Alpino, scritturale del Generale Comandante di Corpo d'Armata Sen. Luigi Poli.

Personal information

Surname(s) / First name(s)

Address(es)

Telephone(s)

Email(s)

Nationality(-ies)

Date of birth

Gender

Lo Cigno, Renato

Work history

Nov. 2002 - Ongoing
Employer

Associate Professor

Department of Information Engineering and Computer Science (DISI), University of Trento

Feb. 2001 - Oct. 2002
Employer

Assistant Professor

Politecnico di Torino

June 1998 - Feb. 1999

Research Scholar

CS Dept. University of California Los Angeles (UCLA)

Jan. 1991 - Jan. 2001
Employer

Research Engineer

Politecnico di Torino

Sept. 1988 - Dec. 2000
Employer

Consultant

Olivetti; Studio Torta (Patent Office); Politecnico di Torino

Italian ASN habilitations as
Full Professor ("Professore di
Prima Fascia")

09/F2 – ING-INF03: "Telecomunicazioni"

09/H1 – ING-INF05: "Sistemi di Elaborazione dell'Informazione"

01/B1 – INF01 "Informatica"

Periods in International
Research Centers

2001: Jul-Aug (8 weeks), Computer Science Dept. University of California, Los Angeles (UCLA), USA, invited by Prof. Mario Gerla

2006: Jul-Aug (8 weeks), Computer Science Dept. University of California, Los Angeles (UCLA), USA, invited by Prof. Mario Gerla

2013: Jul-Aug (8 weeks), NEC EU Research Laboratories, Heidelberg, Germany, invited by Dr. Saverio Niccolini

Academic Services and Roles

- 2016 – Ongoing: Member, for the University of Trento, of the council ("assemblea consortile") of CINECA, the software house of the Ministry of Education and Research and most Italian public Universities.
- 2009 – Ongoing: "Delegato del Rettore per i servizi e le tecnologie informatiche" Rector ICT Delegate: Responsibility of the University policies in ICT infrastructure and services, including the interface with GARR and control on de-materialization administrative procedures. The delegation was given by Rector Bassi and has been confirmed by Rector de Pretis and Rector Collini.
- 2009 – Ongoing: Dept. ICT Coordinator: Supervision and coordination of the ICT technical staff of the department.
- 2009 – Ongoing: ICT PhD School Executive Committee Member: Elected Member of the Executive Committee of the ICT PhD School to support the coordinator activities.
- 2003-2009: Dept. Representative in the committee for the guidance of the policies in ICT services for the Faculty of Science.
- 2005-2012: Dept. Library Delegate: Coordination and approval of Department library policies and acquisitions.
- 2004-2010: Dept. Seminars Management: Organization and financial management of scientific seminars with general interest for the entire Department given by invited speakers.

Education & Languages

July 1988

"Laurea in Ingegneria Elettronica con indirizzo Telecomunicazioni", Politecnico di Torino, Italy

Mother tongue(s)

Other language(s)

*Self-assessment
European level^(*)*

English

German

Italian

English, German

Understanding				Speaking				Writing	
Listening		Reading		Spoken interaction		Spoken production			
C2	Proficient user	C2	Proficient user	C2	Proficient user	C2	Proficient user	C2	Proficient user
A1	Basic user	A1	Basic user	A1	Basic user	A1	Basic user	A1	Basic user

^(*) Common European Framework of Reference (CEF) level

I have passed the Cambridge Certificate of Proficiency in English (CPE), the highest certification of the Cambridge exams for non mother tongue; I have passed the 'Zertifikat Deutsch als Fremdsprache' of the Goethe Institut

Institutional Teaching

AA 2017/2018	Reti: BSc, CFU 6, in Italian. A basic introductory course (II year, first semester) on Computer Networks featuring the Internet Architecture Wireless Mesh and Community Networks: MSc, CFU6, in English. A course on wireless networks based on 802.11 standards. MAC protocols and PHY level notions constitute the theory. Community Networks ad bottom-up broadband initiatives, and Vehicular Networks for Cooperative Driving are the application domains discussed during the course Simulation and Performance Evaluation: MSc, CFU 6, in English. An advanced course on data analysis, system modeling, and discrete event simulation (DES). The course deals with Stochastic Processes, Markov Chains and Queuing Systems from a theoretical point of view. DES is approached from a the perspective of a random walk in the state space of a Semi-Markov Chain, with the development of simple Python simulations dealing with networking problems. Synthetic data is analyzed to understand its stochastic properties, e.g., parameters evaluation.
AA 2016/2017	Reti: BSc, CFU 6, in Italian. A basic introductory course (II year, second semester) on Computer Networks featuring the Internet Architecture Nomadic Communications Laboratory: MSc, CFU6, in English. A course with 50% hands-on work on MAC protocols for short range wireless networks (802.11) Simulation and Performance Evaluation: MSc, CFU 6, in English. Same program as in 2017/2018
AA 2015/2016	Reti: BSc, CFU 6, in Italian. A basic introductory course (II year, second semester) on Computer Networks featuring the Internet Architecture Nomadic Communications Laboratory: MSc, CFU6, in English. Same program as in 2016/2017 Simulation and Performance Evaluation: MSc, CFU 6, in English. Same program as in 2017/2018
AA 2015/2016	Reti: BSc, CFU 6, in Italian. A basic introductory course (II year, second semester) on Computer Networks featuring the Internet Architecture Nomadic Communications Laboratory: MSc, CFU6, in English. Same program as in 2016/2017 Simulation and Performance Evaluation: MSc, CFU 6, in English. Same program as in 2017/2018
AA 2014/2015	Nomadic Communications Laboratory: MSc, CFU6, in English. Same program as in 2016/2017 Advanced Networking: MSc, CFU 6, in English. A deep understanding of the Internet as integrated services networks, from routing to congestion control, from reliable protocols to multimedia communications The course on networking (Reti di Calcolatori) was not held because it has been moved from year I to year II, so no there were no students to take it

AA 2013/2014	Reti di Calcolatori: BSc, CFU 6, in Italian. A basic introductory course (I year, second semester) on Computer Networks featuring the Internet Architecture Nomadic Communications Laboratory: MSc, CFU6, in English. Same program as in 2016/2017 Advanced Networking: MSc, CFU 6, in English. Same program as in 2014/2015
AA 2012/2013	Reti di Calcolatori: BSc, CFU 6, in Italian. A basic introductory course (I year, second semester) on Computer Networks featuring the Internet Architecture; the course was moved from year II to year I, so the number of students were double, with lessons held in parallel in two rooms in teleconferencing Nomadic Communications Laboratory: MSc, CFU6, in English. Same program as in 2016/2017 Advanced Networking: MSc, CFU 6, in English. Same program as in 2014/2015
AA 2011/2012	Reti di Calcolatori: BSc, CFU 6, in Italian. A basic introductory course (II year, second semester) on Computer Networks featuring the Internet Architecture Nomadic Communications Laboratory: MSc, CFU6, in English. Same program as in 2016/2017 Advanced Networking: MSc, CFU 6, in English. Same program as in 2014/2015
Previous Years	I have regularly taught two or three courses on networking topic for a total of 18 CFU every academic year
MSc and BCs Theses	I have supervised (at the University of Trento) about 40 theses in MSc programs, 6 of which in double degree programs and about 50 theses in BSc programs
PhD Membership and Courses	I am member of the ICT PhD School of DISI, University of Trento, since the academic year 2002/2003. I have taught the following courses either at Trento or in other Italian Universities:
Simulation and Performance Evaluation	2015-16 ICT PhD School, University of Trento, in English
P2P Networks	2009-10 ICT PhD School, University of Trento, a joint course with Prof. Alberto Montresor, in English
P2P Networks	2007-08 ICT PhD School, University of Trento, a joint course with Prof. Alberto Montresor, in English
Performance Modeling with Stochastic Processes	2007-08 Università degli Studi di Brescia, in English
QoS nelle WLAN: Lo Standard 802.11e	February 20-24, 2006, Dottorato in Telecomunicazioni Università di Napoli Federico II – Scuola di Dottorato in Ingegneria dell'Informazione, in Italian
PhD Students Supervision	
Thang Le Nat	2001–2006; Thesis title: "QBD Processes in Modeling Telecommunications Networks"
Damiano Carra	2003–2007; Thesis title: "Performance Evaluation of Overlay Content Distribution Systems"
Viet-Thang Nguyen	2004–2007; Thesis title: "Fractional Lambda Switching: Node Design and Time-blocking Analysis"
Zoltaán Zsoóka	2001–2006; Thesis title: "Performance modelling and analysis of IP over WDM networks." This PhD has been supervised together with Prof. László Jereb at the Department of Telecommunications of the Budapest University of Technology and Economics (BUTE), today the University is called BME

Csaba Kiraly

Alessandro Russo

Raihana Ferdous

Alexandre Kandalintsev

Michele Segata

Lorenzo Ghiri

International PhD Evaluation Committees

Ilias Chatzidrossos; KTH,
Stockholm, Sweden

Matti Juutilainen; Lappeenranta
University of Technology (LUT),
Finland

2005–2012; Thesis title: "Some Performance and Design Aspects of Overlay Networks." This PhD has been supervised together with Prof. Tien Van Do at the Department of Telecommunications of the Budapest University of Technology and Economics (BUTE), today the the University is called BME

2008–2013; Thesis title: "Cooperative Push/Pull Protocols for Live Peer-assisted Streaming"

2009–2014; Thesis title: "Analysis and Protection of SIP based Services"

2010–2016; Thesis title "Application Interference in Multi-Core Architectures: Analysis and Effects"

2012–2016; Thesis title; "Safe and Efficient Communication Protocols for Platooning Control." This PhD was jointly supervised with Prof. Falko Dressler and lead to a double degree with the University of Innsbruck. Michele Segata received the award for the best PhD Thesis of the ICT school in the years 2015–2016

2017–ongoing; Topic "Centrality Metrics in Routing and BlockChain applications to distributed networks"

2012; Thesis title: "Live Streaming Performance of Peer-to-Peer Systems." Supervisors: Prof. György Dán, Prof. Viktória Fodor

2009; Thesis title: "Towards Open Access Networks – Prototyping with the Lappeenranta Model." Supervisors: Prof. Jari Porras, Prof. Jouni Ikonen

Research Interests

Wireless Hot-Spots, Meshes,
and Community Networks

P2P Networks and Systems

My research interests are in computer and communications networks, with a broad and interdisciplinary approach. I have worked in several different fields, from routing to congestion control, from protocol design to applications architectures and many others, including optical networks and protection mechanisms. Also from the methodological point of view I have used and contributed to different techniques, from simulation to analytic modeling to measures and experimental approaches. The next three paragraphs summarize the three main field of research that I'm currently pursuing more actively.

The support of short range mobility and nomadic computing and communications is one of the enabling factors of the 21st century ICT, overruling the traditional dichotomy between fixed and cellular networks. In this context we can find many different traditional topics interacting one another, but also topics that are entirely new and span across different disciplines. My research here covers several different aspects, from the application of centrality metrics to improve routing protocols and applications placement, to the analysis of the topological properties of networks that evolve following constraints that come both from the environment (propagation, terrain etc.), but also from the socio-economic background of area where they develop. Within this research line, Community Networks are extremely interesting as a novel emerging phenomenon where disciplines as different as communication networks, law, sociology and political economy come together to shape and mold the future evolution of the Internet.

Peer-to-Peer communications and systems have entirely changed the scenario of content production and service provisioning in networks. They are mainly known for file sharing and distributed storage (DHTs), but they are indeed contributing also, sometimes with a sort of side-pollution, to the general field of distributed systems as well as technologies like Content Distribution Networks and Content Centric Networking. My activity here has been mainly focused on live P2P streaming, with the realization, through several research projects, of an advanced open-source platform for real-time audio and video communications that is entirely distributed and do not require the support of any centralized ore cloud-based service. More information on this project and the related research can be found at <http://peerstreamer.org/>.

This is the most recent research line of research I opened with an interdisciplinary approach that has brought interesting and important results. The goal and focus is autonomous and cooperative driving, with special attention to techniques and technologies that can improve safety and increase the infrastructure usage, thus reducing fuel consumption and helping to reduce the need for building additional roads. Together with my collaborators, we mix together research on short-range communications (DSRC – Direct Short Range Communications) together with control techniques and finally advanced simulation capabilities and models that allows the joint evaluation of the network performance and its impact on the application, i.e., the capacity to reduce the accidents and casualties, and increase vehicle flows to reduce consumption and increase the infrastructure efficiency. The tool we developed, PLEXE (<http://plexe.car2x.org/>) is one of the most used in the community for research on cooperative driving.

Funding

Only projects won while at the University of Trento since 2003 are reported in the list below, separated between EU, National, and other projects. Working at Politecnico di Torino I participated in several EU and national project too, building the experience that allowed me to propose and coordinate, either as PI or as local coordinator, the projects reported hereafter.

European Projects

H2020 Network Infrastructure as Commons (netCommons)

Role: Project Coordinator and PI https://cordis.europa.eu/project/rcn/199879_en.html; 2015–2018, duration 36 Mo.

netCommons follows a novel transdisciplinary methodology on treating network infrastructure as commons, for resiliency, sustainability, self-determination, and social integration. Project partners have expertise in engineering, computer science, economics, law, political science, urban, media, and social studies; and close links with successful Community Networks like guifi.net, ninux.org, and sarantaporo.gr. Community networks are complex systems that require multiple skills to thrive: technical, legal, socio-economic, and political. They face many challenges and they also need abstractions, models and practical tools to grow and produce a higher beneficial impact on our society.

UniTN funding:
Home page

651 kEU
<https://netcommons.eu/>

H2020 Pop-Routing On WISHFUL (POPROW)

Role: Coordinator and PI; a project in Open Call 3 of WiSHFUL <http://www.wishful-project.eu/>; 2016–2017; duration 8 Mo.

The goal of POPROW is to test and enhance "Pop-Routing", a technique for wireless mesh link-state routing protocols that tunes the generation frequency of control messages independently for each node of a wireless mesh network as the result of real-time graph analysis performed on the network topology. Pop-Routing is backward-compatible and allows the reduction of the routing tables convergence time after a failure by a factor of up to 60%, or, conversely, it can keep the same convergence speed and reduce the total amount of control messages, thus reducing overhead and increasing the scalability of the protocol.

UniTN funding:

50 kEU

EIT Information-aware data plane for programmable networks

Role: UniTN coordinator. An activity in the Future Networking Solutions (FSN) EIT action line; 2015, duration 12 months

UniTN funding:	The goal of the activity is to contribute to the deployment of a high-quality/cost-effective network infrastructure via an enhanced data-plane, which is able to serve the increasing traffic demand generated by applications. Carrier Projects have shown that Information Centric Networking (ICN) paradigm is beneficial to achieve this goal, and have proposed a set of ICN mechanisms and algorithms. 80 kEU
FP7 Open Source P2P Streaming (OSPS)	Role: Coordinator and PI; a project in Open Call 2 of CONFINE http://confine-project.eu/; 2013–2014; duration 15 Mo. The goal of OSPS is demonstrating that Community Networks can support advanced multimedia services such as real-time video and TV distribution. The project will also leave to the community a new service to increase the value of the network and better serve the community. UniTN funding: 65 kEU Home page http://osps.disi.unitn.it/
EIT Smart, Ubiquitous Contents (SmartUC)	Role: Coordinator and PI; 2013; duration 12 Mo. This is a large EIT Activity within the Future Networking Solutions (FNS) action Line. The Activity seeks to create a small ecosystem for the transferring competences among groups and build a fertile soil for novel, efficient and economic systems to store and distribute multimedia contents, with special attention to streaming and real-time delivery. UniTN funding: 105 kEU
FP7 Network-Aware P2P-TV Application over Wise Networks (NAPA-WINE)	Role: Coordinator of Trento Research Unit and WP Leader; 2008–2011, duration 36+3 Mo. Focussed on P2P-TV distribution the project provided: i) a careful analysis of the impact that a large deployment of P2P-TV services may have on the Internet; ii) guidelines for P2P-TV developers regarding the design of systems that minimize the impact on the underlying transport network while optimizing the user perceived quality; iii) a road map for Internet Service Providers to better exploit the network bandwidth by showing simple and minimum cost actions that can be taken in presence of P2P-TV traffic. UniTN funding: 400 kEU
Discreet Service Provision in Smart Environments (DISCREET)	Role: Coordinator of Trento Research Unit; 2005-2008, duration 27 Mo. The project provided a key contribution to break a false dichotomy, in which systems designers force their users to sacrifice some part of a fundamental right –their privacy– in order to gain some utility –the use of the application. The project paved the road to show that a major leap in terms of societal acceptance of pervasive technologies would come from strict technical guarantees of privacy protection. The project was carried out as CNIT Unit. UniTN funding: 100 kEU Home page http://www.ist-discreet.org/
National Projects	
PRIN 2008, Bandwidth and Energy Saving by sub-λ Optical Switching (BESOS)	Role: Coordinator of Trento Research Unit; 2010–2012, duration 24 Mo. The project, coordinated by Politecnico di Milano (Prof. Pattavina), studied a novel switching technique for future packet switching networks achieving high energy savings and high bandwidth efficiency. UniTN funding: 45 kEU

PRIN 2006, Peer-to-peer beyOnd FILE Sharing (PROFILES) UniTN funding: Home page	Role: National Coordinator (PI); <i>2007–2009, duration 24 Mo.</i> The project addressed the study of peer-to-peer (P2P) communication systems, considering P2P as a novel communication paradigm that is changing the rules of the communication game in the Internet. 93 kEU http://profiles.disi.unitn.it/
Interlink 2004-2006, Modeling Wireless Heterogeneous Networks UniTN funding:	Role: co-PI together with Prof. Mario Gerla ad CS-UCLA <i>2006–2009, duration 48 Mo.</i> The project supported mobility between the CS Department of UCLA and DISI at UniTN to foster research on modeling complex, heterogeneous wireless networks, at the time a very active research topic at both institutions. The framework was "Internazionalizzazione del Sistema Universitario (Art. 23 - D.M. 05.08.2004 n. 262) Interlink I04CC2G20." 54 kEU
PRIN 2004, ToWard Enhancing 802.11 differentiated service LeVEls (TWELVE) UniTN funding: Home page	Role: Coordinator of Trento Research Unit <i>2005–2006, duration 24 Mo.</i> The project, coordinated by Prof. Bianchi at University of Roma II (Tor Vergata), addressed service differentiation in complex multi-BSS 802.11 networks. 95 kEU http://twelve.disi.unitn.it/
Local and Industrial Projects Wireless Community Networks: A Novel Techno-Legal Approach Internal UniTN funding:	Role: Co-PI with Prof. Roberto Caso (JUS) <i>2015–2016, duration 18 Mo.</i> An interdisciplinary project funded by the University of Trento (Progetti di Ricerca 2014) exploring the relationship between regulations and law on the one hand and technology on the other on the evolution of difference communication networks, with special attention to bottom-up broadband networks and reduction of the digital divide. 100 kEU
Privacy Aware content Filtering for Future Pervasive Environments (PAF-PFE) UniTN funding:	Role: Scientific Supervisor <i>2010–2013, duration 36 Mo.</i> Trentino/Marie Curie programme of research, training and mobility of post-doctoral researchers, incoming Post-docs 2010, CALL 1, PCOFUND-GA-2008-226070. Grant recipient : Leonardo Maccari. The objective is the design and development of a privacy-aware content filtering platform focused on future pervasive wireless networks like mesh networks or ad-hoc social networks over smartphones. 150 kEU
NEC: Modeling, Analysis and Simulation of SIP Traffic and Attacks UniTN funding:	Role: Coordinator and PI <i>2007–2010, duration 48 Mo.</i> An industrial project split in three separate contracts on the topics of intrusion detection in SIP-based telephony systems. 80 kEU
Trentino Research & Innovation for Tunnel Monitoring (TRITon)	Role: WP Leader <i>2006–2009, duration 36 Mo.</i> Within the TRITon project, a vast and multi-faceted project, I had the responsibility of the development, from research to the installation in a real operational tunnel, of an adaptive illumination system based on a closed feedback loop where sensing is demanded to a dense WSN. The activity lead to the Patent EP2224308.

Funding dedicated to the WP: Home page	150 kEU http://triton.disi.unitn.it/
Feasibility Study for a GPS-based tool for Rescue Teams Coordination (RESCUE)	Role: Coordinator and PI 2005, <i>duration 6 Mo.</i> Contract SPR-PAT DIT-PRJ-05-98. A project in favor of "Soccorso Alpino" and "Protezione Civile" with the goal of showing the possibility of realizing a centralized coordination system for rescue teams searching for lost people in woods and in the mountains. The system was based on a high sensitivity GPS unit locally in connection with a cellular device that would transfer the appropriate location information to an operation unit either in a mobile head quarter or to a centralized operational room (or both). The system was successfully demonstrated, and it can easily be claimed that it was the precursor of systems in use today, like GeoRescue.
UniTN funding:	10 kEU
VIMAR SpA: Interference and Sensitivity Analysis of ISM Band Radios	Role: Coordinator and PI 2005, <i>duration 6 Mo.</i> A small, focused measure campaign to characterize the performance of standard 802.15.4 radios vs. proprietary systems in typical private housing and office environments.
UniTN funding:	8 kEU
BEA SpA: Illicit UMTS communications suppression	Role: Coordinator and PI 2004–2005, <i>duration 12 Mo.</i> A feasibility study for selectively interfere with illicit and non-authorized voice and data calls within the UTRAN/UMTS radio interface.
UniTN funding:	30 kEU
Editorial Activity	
Editor	IEEE Transactions on Networking; July 2017–Ongoing
Associate Editor	Computer Networks, Elsevier; 2005–2011
Steering Committee Chair	IEEE/IFIP Conference on Wireless On-demand Network Systems and Services (WONS); 2008–Ongoing
General Chair	– IEEE/IFIP Conference on Wireless On-demand Network Systems and Services (WONS), 2016 – IEEE International Conference on Peer-to-Peer Computing (P2P'13), 2013 – IEEE/IFIP Conference on Wireless On-demand Network Systems and Services (WONS), 2007 – ACM International Workshop on Wireless Mobile Applications and Services on WLAN HotSpots (WMASH), 2006

TPC Chair	– IEEE Vehicular Networking Conference (VNC), 2017 – ACM/IEEE International Symposium on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWIM), 2006 – ACM International Workshop on Wireless Mobile Applications and Services on WLAN HotSpots (WMASH), 2005 – IFIP Conference on Wireless On-demand Network Systems and Services (WONS), 2004
Publications Chair	– IEEE 32nd International Conference on Computer Communications (INFOCOM), 2013 – ACM 17th International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc), 2016
Technical Societies Membership	– IEEE Senior Member – ACM Senior Member
Awards	
Best Paper Award	<i>12-th IEEE International Conference on Peer-to-Peer Computing (P2P'12).</i>
Best Paper Award "SPOTS Track"	"Experimental comparison of neighborhood filtering strategies in unstructured P2P-TV systems," S. Traverso, L. Abeni, R. Birke, C. Kiraly, E. Leonardi, R. Lo Cigno , M. Mellia
Best Paper Award	<i>10-th ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN 2011).</i>
Best Paper Award	"Is there light at the ends of the tunnel? Wireless sensor networks for adaptive lighting in road tunnels," M. Ceriotti, M. Corraà, L. D'Orazio, R. Doriguzzi, D. Facchin, S. Guna, G. P. Jesi, R. Lo Cigno , L. Mottola, A. L. Murphy, M. Pescalli, G. P. Picco, D. Pregolato, C. Torghele
Best Paper Award	<i>3-rd IEEE International Conference on Internet Multimedia Systems Architecture and Applications (IMSAA-2009).</i>
Best Paper Award	"Scheduling P2P Multimedia Streams: Can We Achieve Performance and Robustness?", L. Abeni, C. Kiraly, R. Lo Cigno
Best "Runner-up" Award	<i>3-rd IEEE/IFIP Wireless On-Demand Network Systems and Services (WONS 2006).</i>
Best Student Paper Award in the category "Communication Services"	"Scheduling in 802.11e: Open-Loop or Closed-Loop?", P. Larcheri, R. Lo Cigno <i>IEEE Globecom 2010 (Demo Session).</i> "Demonstrating the Impact of P2P Streaming on Video Quality," L. Abeni, C. Kiraly, R. Lo Cigno , R. Birke, E. Leonardi, S. Traverso <i>IEEE Globecom 2006.</i> "Content Delivery in Overlay Networks: a Stochastic Graph Processes Perspective," D. Carra, R. Lo Cigno , E. W. Biersack
Invited Talks and Seminars	
Panel	UNESCO (7 Place de Fontenoy, Paris), "Network Infrastructure as Commons," January 30, 2018, Moderator: Mr Guy Berger, UNESCO Director for Freedom of Expression and Media Development
Seminar	European Parliament, "Workshop on Community Networks and Telecom Regulation" Brussels, October 17, 2017
Talk	Dagstuhl Seminar 14471 "Towards an Affordable Internet Access for Everyone: The Quest for Enabling Universal Service Commitment," November 18, 2014 "Community Networks: Access to the Internet or a Different Internet Model?"

Talk	Dagstuhl Seminar 13392 "Inter-Vehicular Communication – Quo Vadis," September 24, 2013. "Do We Need ...in IVC?"
Seminar	University of Luxembourg, August 26, 2013. "Vehicles Platoons: Fundamental Protocols and Early Results"
Seminar	Institut für Informatik - Universität Innsbruck (UIBK), Innsbruck, Austria, May 12, 2012. "Optimal and Robust Scheduling for Real Time Streaming in Unstructured Meshes"
Seminar	School of Electrical Engineering, KTH, Stockholm, Sweden, February 10, 2012. "Optimal and Robust Scheduling for Real Time Streaming in Unstructured Meshes"
Challenge Talk	IEEE Wireless On-demand Network Systems and Services (WONS 2011), Bardonecchia, Italy, Jan. 26-28, 2011. "Untethered Local Communications: From Wireless Access to Social Glue"
Keynote Speech	6-th International Workshop on Hot Topics in P2P systems (Hot-P2P 2009), Roma, Italy, May 29, 2009. "Peer-to-Peer Beyond File Sharing: Where are P2P Systems Going?"
Talk	Second International Conference on Communications and Electronics, ICCE 2008, HoiAn, Vietnam, June 6, 2008. "On Some Fundamental Properties of P2P Push/Pull Protocols"
Keynote Speech	International Workshop on Mobile Vehicular Networks (MoVeNet 2007), Workshop of IEEE MASS 2007, Pisa, Italy, Oct. 8 2007. "Vehicular Communications: Bringing Together Academic Visions with Automotive Industry Needs"

Citation Indexes

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citations 3100; h-index = 30; i10-index = 85
citations 1420; h-index = 21; i10-index = 48

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Publications: 2018 and in Press

1. M. Segata, N. Facchi, L. Maccari, G. Gemmi, and R. Lo Cigno, "Centrality-based Route Recovery in Wireless Mesh Networks," in *IEEE Int. Conf. on Communications (ICC)*, Kansas City, MO, USA, May. 2018 – To Appear
2. L. Maccari, Leonardo Ghio, A. Guerrieri, A. Montresor, and R. Lo Cigno, "On the Distributed Computation of Load Centrality and Its Application to DV Routing," in *37th Annual IEEE Int. Conf. on Computer Communications (INFOCOM)*, Honolulu, HI, USA, Apr. 2018 – To appear
3. L. Ghio, L. Maccari, and R. Lo Cigno, "Proof of Networking: Can Blockchains Boost the Next Generation of Distributed Networks?" in *14th IFIP/IEEE Annual Conf. on Wireless On-demand Network Systems and Services (WONS)*, Isola 2000, France, Jan. 2018
4. M. Segata, N. Facchi, L. Maccari, and R. Lo Cigno, "RoRoute: Tools to Experiment with Routing Protocol Robustness in WMN," in *14th IFIP/IEEE Annual Conf. on Wireless On-demand Network Systems and Services (WONS)*, Isola 2000, France, Jan. 2018

Publications: 2008-2017

Journals

1. L. Maccari, N. Facchi, L. Baldesi, and R. Lo Cigno, "Optimized P2P streaming for wireless distributed networks," *Pervasive and Mobile Computing (PMC)*, Elsevier, vol. 2017, pp. 1–12, 2017
2. L. Baldesi, L. Maccari, and R. Lo Cigno, "On the Use of Eigenvector Centrality for Cooperative Streaming," *IEEE Comm. Letters*, vol. 21, pp. 1953–1956, 2017
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5. M. Segata, F. Dressler, and R. Lo Cigno, "Let's Talk in Groups: A Distributed Bursting Scheme for Cluster-based Vehicular Applications," *Elsevier Vehicular Communications*, vol. 8, pp. 2–12, April 2017
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58. R. Lo Cigno and A. R. D. Carra, "On Some Fundamental Properties of P2P Push/Pull Protocols," in *Int. Conf. on Communications and Electronics (ICCE)*, June 2008, pp. 67–73
59. G. Costanzi, R. Lo Cigno, A. Ghittino, and S. Annese, "Route Stabilization in Infrastructured Wireless Mesh Networks: an OLSRD Based Solution," in *IFIP/IEEE Wireless on Demand Network Systems and Services (WONS)*, Feb. 2008, pp. 500–505
60. V.-T. Nguyen, R. Lo Cigno, and Y. Ofek, "Time Blocking Analysis in Time-driven Switching Networks," in *IEEE IEEE Conf. on Computer Communications (INFOCOM)*, Phoenix, AZ, USA, April 2008, pp. 1804–1812

Patents

European Patent No.
EP2224308

Italian Patent No. 1.245.550

Inventors: A. Bondi, M. Pescalli, G.P. Picco, R. Lo Cigno, M. Nardelli, N. Vernesoni;
Title: "A system and a method for controlling the light intensity in a tunnel"; Patent No. EP2224308, Assigned to SIEMENS SPA, Filing Date: February 26, 2009, Grant Date: October 24, 2012

G. Albertengo; F. Borgnonovo; P. Civera; C. D'Orio; L. Fratta; R. Lo Cigno; G. Masera; G. Panizzardi; G. Piccinini; M. Ruoz Roch; M. Zamboni; Title: "Procedimento per l'instradamento di pacchetti da un nodo di una rete di comunicazione a commutazione di pacchetto, nodo di rete e rete a commutazione di pacchetto per l'attuazione di tale procedimento"; Italian Patent No. 1.245.550, Assigned to CEAT Cavi Industrie and CNR, Filing and Grant Date: September 29, 1994

I authorise the use of my personal data in compliance with the Italian Legislative Decree number 196/2003.

The information contained in this document are made pursuant to and for the purposes of articles 46 and 47 of Presidential Decree 455/2000.

Altopiano della Vigolana, 14/04/2018

Renato Lo Cigno

Matteo Leoni

CV with publications

Current position

Associate professor in Materials Science (09/D1) at the University of Trento - Department of Civil, Environmental and Mechanical Engineering.
Chair of the board of directors of the International Centre for Diffraction Data (ICDD)

Academic career

- visiting scientist, CSIRO Melbourne 07/2016, 02/2017
- DAAD fellow at the University of Bayreuth and University of Nürnberg-Erlangen 10-12/2014
- Associate professor 09/D1 c/o University of Trento, Department of Civil, Environmental and Mechanical Engineering, 06/2014
- habilitated both as Full and Associate professor in Experimental Condensed Matter Physics (Italian class 02/B1) and in Materials Science (Italian class 09/D1)
- Marie Curie fellow c/o London Centre for Nanotechnology (University College London and Imperial College London) and Diamond synchrotron, collaborating with Ian Robinson's group, 06-12/2011
- ricercatore universitario ING-IND/22 c/o University of Trento, Department of Materials Engineering and Industrial Technologies, now Department of Civil, Environmental and Mechanical Engineering (I), from 09/2005;
- ricercatore a tempo determinato c/o University of Trento, Department of Materials Engineering and Industrial Technologies (I), 02/2001-08/2005;
- post-doc c/o University of Trento, Department of Materials Engineering and Industrial Technologies (I), 02/2000-01/2001;
- post-doc c/o Max-Planck Institut für Metallforschung - Abteilung Mittemeijer, Stuttgart (D), 01/1999-01/2000;
- PhD in Materials Engineering (dottorato di ricerca in Ingegneria dei Materiali, University of Roma "Tor Vergata"), with a thesis "Residual stress gradients in polycrystalline coatings", 1999;
- visiting scientist on the 2.3 Powder Diffraction Beamline of the Daresbury SRS synchrotron, 1997;
- Research contractor in the Microstructure/XRD lab at the University of Trento (1995);
- habilitated to the profession of Engineer (State exam), 1995;
- graduated in Ingegneria dei Materiali (Materials Engineering) with full votes (110/110 cum laude) at the University of Trento (TN, Italy), with a thesis on "Determinazione sperimentale degli stress residui in rivestimenti ceramici" (Experimental determination of residual stresses in ceramic coatings) in 1995;
- undergraduated at the Istituto Tecnico Industriale (Technical-Industrial Institute) "G. Marconi" of Rovereto (TN, Italy) in "Elettronica e Telecomunicazioni progetto AMBRA" (Electronics, Telecommunications and Computer science, experimental project AMBRA) with full votes (60/60);

Main teaching activity

Main courses taught. Teaching load expresses in CFU (credits) over total CFU for the course (one CFU corresponds to 10-12 hours of frontal activity).

- Course "Materiali innovativi per l'ingegneria civile (Innovative materials for

civil engineering, 2/6 CFU in Italian), University of Trento, Master in Civil Engineering, 2017;

- Course "Ciclo dei materiali" (Materials lifecycle, 2/6 CFU in Italian), University of Trento, Master in Civil Engineering, since 2017;
- Course "Tecnologia dei materiali" (Materials technology, 2/6 CFU in Italian), University of Trento, Master in Environmental Engineering, 2017;
- Chair of the course "Inorganic Chemistry" (3/6 CFU) for the course in "Viticoltura ed Enologia", University of Trento + Fondazione Edmund Mach, since 2016;
- Chair of the course "Chemistry, Applied Chemistry and Materials Technology" for Building Engineers (6/6 CFU), University of Trento, European Master in Building Engineering/Architecture, since 2013;
- Invited professor: Université de Rennes - Rennes (F), 10/2013. X-ray diffraction for the study of nanostructured and layered materials (in French and in English).
- Professor in the courses "Laboratorio di scienza e tecnologia dei materiali" (Laboratory of Materials science and technology) (5/6 CFU, class + lab in Italian, Laurea di I livello, Ingegneria industriale) and "Materials characterisation" (3/9 CFU, class + lab in English Laurea di II livello, Materials engineering) 2010-2015;
- Invited professor: Université du Maine - Le Mans (F), 2007 and 2008 teaching basic and advanced X-ray diffraction for the analysis of materials (2/2 CFU, class in French);
- Chair of the course "Nanostructured Materials" (6/6 CFU, class in English, University of Trento Laurea di 2 livello in Materials Engineering), 2006-2016;
- Professor & teaching assistant in the courses of "Scienza dei Materiali VO" and, subsequently, "Scienza dei Materiali I" & "Scienza dei Materiali II", Now again "Scienza dei Materiali" (Materials Science, several flavors) (3/12 CFU, class in Italian, Laurea di 1 livello, Ingegneria industriale) 2001-2012;
- Professor for the course of "Analisi Matematica II" (advanced calculus) (5/5 CFU, class in Italian), University of Trento, 2000;
- Professor at the International School of Doctoral Studies in Materials Science and Engineering and Doctoral School in Civil, Environmental and Mechanical Engineering, University of Trento. The courses taught (in English) are: Materials Science and Technologies (3/3 CFU, 2009-2013), Experimental Mechanics of Materials (3/9, CFU 2002-2011), X-ray diffraction (3/6 CFU 2013), Advanced materials characterization at synchrotron radiation sources (3/6 CFU 2007-2012), Nanomaterials (2004-2006).
- Invited teacher at several international schools and workshops on the use of X-ray diffraction for materials analysis;
- Freelance teacher on computer hardware/software, basic and advanced C, C++, Delphi, Pascal, Fortran 77/90, Assembler (x86 and Z80) language programming for local private companies, since 1993;

Organisation /service

Member of the DICAM department and of the teaching board of the Doctorate in Civil, Environmental and Mechanical Engineering at the University of Trento
 Member of the commission for teaching, CAD "Edile" (Commissione didattica CAD Edile) at the University of Trento from 2016
 Member of the international delegates commission of the CAD "Edile" at the University of Trento, from 2017
 Delegate for information services and technologies for the DICAM, at the University of Trento 2013-2017

Awards

Award from HRH Prince Hassan of Jordan for the contribution to the Physics

teaching at the "Eighth International Petra School of Physics", Amman (JO), 11/04/2016

Hanawalt Award 2016, for "contributions to whole powder pattern modeling, incorporating physical models of the microstructure"
<http://www.icdd.com/resources/awards/awardwinners/2016h-leoni.htm>

"Premio Mario Nardelli", 2010 of the AIC (Associazione Italiana di Cristallografia) 'Per i suoi contributi originali allo studio delle microstrutture in vari tipi di materiali condotte con metodi di diffrazione di polveri nano cristalline e allo sviluppo di tali metodologie'
<http://www.cristallografia.org/detail.asp?IDSezione=31&IDN=23>

Fellowship of the International Center for Diffraction Data (ICDD), 2010
<http://www.icdd.com/newsletter/icdd-v-8-i-2.htm>

Finalist of "Nanochallenge 2008" business plan competition with the team VINCI (M. Leoni - UNITN, B. Antic, V. Spasojevic, M. Huter - VINCA centre Belgrade, Serbia)
<http://www.nanochallenge.com/nanochallenge2011/past-editions/edition-2008/finalists.html>

European Powder Diffraction Committee (EPDIC) Award 2002 for 'outstanding scientific contribution in the field of powder diffraction'
http://epdic.ing.unitn.it/html/epdic_awards.html
<http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=8507768>

ENEL (National Institute for Electrical Energy, national supplier of electric power) award 1998: national winner;

Best oral presentation "Structure and microstructure of nitrate double layered hydroxides" at XV International Clay Conference, Rio de Janeiro (2013)

Powder Diffraction plaque for the paper "Diffraction line profile from a disperse system: a simple alternative to Voigtian profiles " (2006)

Publication highlight in the Newsletter of the International Union for Crystallography for the manuscript "Line profile analysis: pattern modelling versus profile fitting" (2006)

Language skills

Italian: mother tongue; English, French: fluent; German: sufficient; Spanish, Portuguese: fair; Russian, Indonesian: elementary

Organisation of events

Organiser of the "SETI 2017 summer school" on raw materials, innovation, entrepreneurship, technology transfer (Trento 5-11/07/2017)
<https://sites.google.com/g.unitn.it/seti2017>

Organiser of the "TOPSTARS 2017 winter school" on raw materials, innovation, entrepreneurship, technology transfer (Trento 6-5/11/2017)
<https://sites.google.com/g.unitn.it/topstars2017>

Organizer of the "2012 AIC International School joint with 10th Paolo Giordano Orsini School" (Trento 15-20/09/2012)
<http://2012.aicschool.org>

Co-organiser of the ECRS8 congress (Riva del Garda, Trento, 2010)
<http://events.unitn.it/en/ecrs8>

**Membership
and
chairmanship**

Chair of the Board of Directors (first non-US, from 03/2016), Chair of the Technical committee (from 03/2012-02/2016), European Technical Co-chair (from 03/2008) , Fellow (from 03/2011) and Chair of the Grant In Aid Committee (03/2010-02/2012) of the International Centre for Diffraction Data, ICDD www.icdd.com

Consultant member of the Commission on Powder Diffraction of the International Union for Crystallography, from 08/2014.

<https://www.iucr.org/iucr/commissions/powder-diffraction>

Member of the scientific committee of the "Ecole sur la détermination de structure Cristalline à partir des données de diffraction" (University of Tunis el Manar) from 2014

Member of the scientific committee of the "Paolo Giordano Orsini School" on materials analysis (Università di Trento). Co-organiser of the 2002-2010 editions

Member of the permanent Size-Strain conference committee. Co-organiser of the Size-Strain III conference (Trento, 2001).

Member of the International X-ray Analytical Society (IXAS), European Crystallographic Association (ECA), Associazione Italiana di Cristallografia (AIC), British Crystallographic Association (BCA), Deutsche Gesellschaft für Kristallographie, International Center for Diffraction Data (ICDD), British and Irish Mineralogical Society

**Refereeing of
papers,
institutions
and scientific
project**

Reviewer for scientific projects of:

- European Synchrotron Radiation Facility (<http://www.esrf.eu>) from 2006;
- SNF (Swiss National Science Foundation, <http://www.snf.ch>) from 2009;
- GACR (Grantová Agentura České Republiky, <http://www.gacr.cz>, public funding agency of Czech Republic) from 2010;
- Advanced Photon Source (APS, <http://www.aps.anl.gov>, Argonne National Laboratories, Argonne - IL, USA) from 2012.
- MIUR (Italian Ministry of University and Research), FIRB and PRIN projects (<http://www.miur.it>) from 2013;
- Polish National Science Center (<http://www.ncn.gov.pl>, public funding agency of the Polish government) from 2013;
- FWF (Fonds zur Förderung der wissenschaftlichen Forschung, <http://www.fwf.ac.at/>, funding agency of the Austrian government) from 2013;
- Oak Ridge National Laboratory's (ORNL) Neutron Sciences Directorate (<http://www.ornl.gov>, Oak Ridge – TN, USA) from 2014;
- National Center of Science and Technology Evaluation of Kazakhstan (<http://www.ncste.kz>) from 2014;
- Swiss Light Source (SLS, <http://www.psi.ch/sls/>) from 2015;
- COST projects of the EU (<http://www.cost.eu/>), reviewer and rapporteur from 2017;

Referee for international Journals in the field of applied crystallography and materials science/engineering among which: Acta Crystallographica A, Angewandte Chemie, Applied Clay Science, Applied Surface Science, Cement and Concrete Research, Colloids and Surfaces A, Clays and Clay Minerals, Electrochemistry Communications, European Journal of Mineralogy, Geotechnique, Inorganic Chemistry, Journal of Alloys and Compounds, Journal of

Applied Crystallography, Journal of Applied Physics, Journal of Biomaterials Applications, Journal of Crystal Growth, Journal of Materials Science, Journal of Materials Science – Materials in Electronics, Journal of Materials Research, Journal of Nuclear Materials, Journal of the American Ceramic Society, Journal of the European Ceramic Society, Materials Chemistry and Physics, Materials Letters, Materials Science and Engineering A, Minerals Engineering, Nanoletters, Nature, Powder Diffraction, RSC Advances, Surface and Coatings Technology, Thin Solid Films, Zeitschrift für Kristallographie.

Editor of ISRN Materials Science since 01/2011

Student activities

Member of the board of examiners for the Master degree in Physics at the University of Dakar (Senegal).

Member of the board of examiners for the PhD in Mineralogy for the University of Oviedo (S) and PhD in Physics for the University of Melbourne (AUS)

Fully sponsored bursaries for PhD Students R. Koch, R. D'Angelo (Doctoral school of the DIMTI), co-financed C. Silva and D. Shovkun.

Co-supervisor of local PhD students M. D'Incau, H. Pesenti e D. Dodoo-Arhin and of the foreign PhD students Y. Khereddine (Univ. Algiers), B. Negri (Univ. Tunis El Manar), H. Fernandez-Echevarria (Univ. Santiago de Chile, current)

Main scientific interests and past experience

Powder diffraction; experience with traditional techniques (Bragg-Brentano and Parallel Beam diffraction, Grazing Incidence Diffraction, Surface diffraction (Crystal Truncation Rods measurements), Reflectometry, Texture and Residual Stress analysis) and non-traditional ones (neutron diffraction, synchrotron radiation diffraction in traditional and grazing geometry, development of new techniques for the measurement of through-thickness stress fields by diffraction and by combination of destructive and non-destructive techniques). Development of new micro/nanomechanical models compatible with the micro/nanostructure of the material for residual stress measurement in thin films and bulk specimens.

Applied X-ray diffraction: activity in pattern modeling (Rietveld and Rietveld-related methods, new methodologies of full pattern analysis, namely Whole Powder Pattern Fitting and Whole Powder Pattern Modeling), Line Profile Analysis (both traditional and new methods) and relative non-structural applications of Rietveld analysis (LPA embedded in the Rietveld code). Quantitative phase analysis and tentative structure solution of complex amorphous/semicrystalline magnetic metallic glasses and small structures (<200 atoms). Development and evaluation of new line-profile standards for powder diffraction (KCl, LaB₆). Development of a new algorithm and the corresponding code for the modeling of surface relaxation phenomena occurring in nanometer-sized powders within a full diffraction pattern approach.

Instrument development: hardware, electronics and software project of a 4 point bending tool for *in situ* direct measurement of X-ray elastic constants in small test-samples for a Philips X'Pert MRD diffractometer. Project of a reaction chamber for *in situ* study of surface reactions (both by reflectometry, diffraction and CTR scan) to be mainly used on synchrotron radiation facilities.

Computer-assisted diffraction analysis and Computational Materials Science: development of a computer program for the analysis of multilayer structures (especially substrate-film, substrate-oxide, substrate-intermixed layer-film-passivating oxide and similar structures). Development of a code for full pattern analysis of materials microstructure using the WPPM algorithm.

Development of the DIFFaX+ code for the refinement of faulted layered structures (e.g. minerals, clays, etc.) and modular materials. Development of assembly and CUDA routines for fast calculation of atom-atom correlations (Pair Distribution Function) via Debye method. Development of CUDA code for traditional crystallography and imaging (phasing of single images and ptychography).

Materials/nanomaterials: ball milling and its effects on defectivity of metals and oxides. Nano-sized materials for power production and storage (lithium-based batteries, zirconia/ceria for SOFCs, copper oxides for solar cells). Materials for electro- and photo-catalysis: nano-sized platinum crystals and multiple-doped TiO_2 . Surface reactivity of minerals and nano-sized powders. Structural/ microstructural analysis of nano-sized powders (synthetic nano-chrysotile from hydrothermal synthesis, ceramic sol-gel powders & quantum dots, nanostructured metals, nanostructured grains produced from amorphous metals). Novel low cost/high performance bioactive scaffolds from fossils. Nano agropharmaceutical and pesticides with improved bioavailability and reduced pollution effects.

Coatings: thermal barrier coatings (e.g. stabilized zirconia). Hard protective films (diamond, carbides, nitrides). Films for solid-state gas sensors (e.g. SnO_2 , TiO_2). Production and characterization of RF magnetron sputtered thin films for wear protection, microelectronics etc.

Major current research topics

- Correlation between structure, microstructure and properties of nanostructured, modular and faulted materials.
- Development of novel algorithms and mathematical description for the analysis and classification of nanostructured and layered materials with and without defects (mainly based on traditional and advanced diffraction methods)
- Development of the PM2K code for Whole Powder Pattern Modeling (WPPM) and of the DIFFaX+/MODULAR code for the refinement of faulted, modular and <3D periodic structures from (X-rays, neutron and/or electron) diffraction data;
- diffraction and multiphysics modeling of relevant 2D materials and layered systems showing faults (e.g. LDHs, clays, phosphonates, perovskites, titanates, hydroxides, zeolites etc.) and correlation between defects and activity (e.g. catalytic, optical, thermoelectrical, sequestration, drug delivery, solubilisation)
- Development of fast (running on GPU) algorithms for crystallography and imaging (phasing of single images and ptychography) based on traditional approaches and on Artificial Intelligence
- Microstructure analysis of nano catalysts, and self-assembled nanosized powders
- Novel materials based on poly-substituted titania and tailored microstructure for electro and photocatalysis;
- Development and in situ (on leaf) evaluation of the performance of nanostructured agrochemicals;
- Production and characterization of nanostructured and interlayered pharmaceuticals, agropharmaceuticals and pesticides: structure and microstructure
- In-situ/operando studies of microstructure evolution in Li- Na- and K-based battery materials during cycling
- Microstructure of fatty acid solids (mainly natural fats/oils)
- Shape memory alloys: crystallography, defects and microstructure understanding via fast synchrotron-based diffraction
- Microstructure of superhard materials
- Additive manufacturing (AM) and new techniques to measure and reduce residual stresses in components produced by AM
- Use of secondary raw materials for a sustainable materials lifecycle

	• in-situ/operando characterization of living organisms using synchrotron techniques
Parallel and previous work activities	• Software/hardware consultant and teacher (MS-DOS, Unix, Mac-OS systems and Basic, Pascal, C, C++, Assembler, Delphi) for local companies; • Contractor for the study and realization of a WWW service for the Department of Materials Engineering, University of Trento, 1997; • Consultant for the study and realization of the WWW service for the IXAS (International X-ray Analytical Society); • Contractor for the study and realization of the web site for the conferences Advances in Powder Diffraction 3 - APD3 and Size Strain 3 - SS3;
Computer skills	• Deep knowledge of the main operating systems running on modern PCs: Windows family, Mac OS, *nix/Linux; • Excellent knowledge of digital electronics and of hardware design of modern PCs; experience in assembling systems and networks • Programming experience in Basic, Pascal, Fortran 77/90, C, C++, Assembler, Delphi the main high-level languages (classic and OO) and in assembler (Z80 and x86); • Excellent knowledge of the main software packages available on PCs (from MS Office to scientific graphing tools, symbolic analysis packages like Mathematica, finite element modeling tools like Solidworks, simulation software such as Materials Studio, etc.) • Knowledge of networking basics and protocols (e.g. LANs, Internet, etc.). • Excellent knowledge of Internet, internet software packages and programming languages: HTML (and markup languages in general), PHP
Hobbies	photography; amateur radio (IW3AXO); mycology; free climbing; foreign languages and cultures
Conferences and Publications	I participate quite often to conferences and schools as speaker or organizer of micro symposia. The number of attended conferences is well beyond 50. I am quite often invited to participate to international conferences and schools in the field of materials analysis by X-ray diffraction, crystallography or residual stress analysis. Among the latest invited contributions, we can list: • M. Leoni "Total scattering study of chaotic/statistical microstructure with traditional crystallographic tools" 24th Congress & General Assembly of the International Union of Crystallography, Hyderabad, India, Aug 21-28, 2017 (invited keynote, one of 35, representing powder diffraction and micro/nanostructure analysis) • M. Leoni "Detailed microstructure information from powder data", 15th Pharmaceutical Powder X-ray Diffraction Symposium (PPXRD-15), Hyderabad Aug. 18-20, 2017 (invited keynote) • M. Leoni "Life after Scherrer formula: modern methods of nanostructure analysis using diffraction", OMEE2 conference, Lviv (Ukraine), May 29.31, 2017 (invited keynote) • M. Leoni "Fast and Accurate Microstructure Analysis from Powder Diffraction", AXAA-2017 Conference, Melbourne (Australia), Feb 6-9, 2017 (invited oral) • M. Leoni, T. Fawcett, T. Blanton "Materials analysis using the PDF[®]: data mining beyond search match", 1st Pan-African Conference on crystallography, Dschang (Cameroon) Oct 06-10, 2016 (Invited keynote) • M. Leoni, "Microstructure analysis", Powder Diffraction School 2016, Modern Synchrotron Methods, satellite of the 30th Conference of the European Crystallographic Association. Villigen (CH) Aug 22-26, 2016 (invited) • M. Leoni, "Accurate microstructure determination by X-ray diffraction: a maze or amazing?". 65th Denver X-ray conference, Rosemont - IL (USA)

- Aug 1-3, 2016. (Invited plenary)
- M. Leoni, "X-ray diffraction for the analysis of materials", in multiple lectures. Eighth International Petra School of Physics, Amman (JO) Apr. 11-14, 2016 (invited)
- M. Leoni, "Nondestructive micro/nanostructure analysis using diffraction", 80th Anniversary of the Deutsche Physikalische Gesellschaft, Regensburg (D) Mar 3-6 2016 (invited keynote)
- M. Leoni, "Microstructure stress and strain" and "Stress-strain and data modelling", 8th International Conference on Mechanical Stress Evaluation by Neutrons and Synchrotron radiation, MECASENS 2015, Grenoble (F) Sept 28 – Oct 2, 2015 (Invited keynote and course)
- M. Leoni, "Recent advances in powder diffraction for the non-destructive structure/microstructure analysis of (nano)materials", Balkan Physical Union, Aug. 23-28, 2015 (Invited keynote)
- M. Leoni "Getting the most out of diffraction data: modern micro/nanostructure analysis", 3rd International Conference on Materials Science, Valdivia (Chile) Oct 21-24, 2015 (invited plenary)
- M. Leoni, "Beyond the 3D periodicity limits in modern whole pattern line profile analysis". 63rd Denver X-ray conference, Big Sky - MO (USA) Jul. 28- Aug 1, 2014. (Invited keynote)
- M. Leoni, "A General Formalism to Model the Diffraction Pattern of Layered and Faulted Materials". TMS 2014 - San Diego - CA (USA) Feb. 16-20, 2014. (Invited keynote)
- M. Leoni, "Advances in microstructure analysis". Accuracy in Powder Diffraction IV (organized every 10 years), Gaithersburg - MD (USA) Apr.22-25, 2013. (Invited lecture)

For the complete list of papers, see publication list in my profile on Mendeley:
<http://www.mendeley.com/profiles/matteo-leoni/>
 or on Research Gate:
https://www.researchgate.net/profile/Matteo_Leoni/

Bibliometry (ISI web of science/SCOPUS)

Publications in peer reviewed journals: > **130**

h-index: **30**

ResearchGate RG score: **167.77** (the highest in the University of Trento and one of the highest of the site), close to 150000 reads

Peer reviewed on ISI/Scopus International Journals

[A1] P. Scardi, **M. Leoni**, L. Bertamini, "Influence of phase stability on the residual stress in partially stabilized zirconia TBC produced by plasma spray", Surf. & Coat. Techn. 76-77 [1] (1995) 106-112. (The Netherlands)
[DOI:10.1016/02578-9729\(50\)24964-](https://doi.org/10.1016/02578-9729(50)24964-)
 ISI WOS:A1995TM17900018 SCOPUS EID: 2-s2.0-0029409217

[A2] G. Cappuccio, **M. Leoni**, P. Scardi, V. Sessa, M.L. Terranova, "Microstructure and phase morphology of diamond thin films by synchrotron radiation X-ray diffraction", Mater. Sci. Forum 203 (1996) 285-290. (Switzerland)
[DOI: 10.4028/www.scientific.net/MSF.203.285](https://doi.org/10.4028/www.scientific.net/MSF.203.285)
 ISI WOS:A1996BF42M00048 SCOPUS EID:

[A3] P. Scardi, **M. Leoni**, V. Sessa, M.L. Terranova, G. Cappuccio, "Residual stress in diamond coatings by synchrotron radiation XRD", Mater. Sci. Forum, 228-231 (1996) 451-456. (Switzerland)
[DOI: 10.4028/www.scientific.net/MSF.228-231.451](https://doi.org/10.4028/www.scientific.net/MSF.228-231.451)

ISI WOS:A1996BG37Z00076

SCOPUS EID: 2-s2.0-0030385401

[A4] P. Scardi, **M. Leoni**, G. Cappuccio, J.I. Langford, R.J. Cernik, "The breadth and shape of instrumental line profiles for the powder diffraction station 2.3 at the Daresbury Laboratory SRS". Mater. Sci. Forum 228-231 (1996) 207-212. (Switzerland)

DOI: [10.4028/www.scientific.net/MSF.228-231.207](https://doi.org/10.4028/www.scientific.net/MSF.228-231.207)

ISI WOS:A1996BG37Z00035

SCOPUS EID: 2-s2.0-0030386086

[A5] P. Scardi, **M. Leoni**, L. Bertamini, "Residual Stresses in Plasma Sprayed Partially Stabilised Zirconia TBCs: Influence of the Deposition Temperature", Thin Solid Films, 278 (1996) 96-103. (The Netherlands)

DOI: [10.1016/0040-6090\(95\)08163-1](https://doi.org/10.1016/0040-6090(95)08163-1)

ISI WOS:A1996UV53000017

SCOPUS EID: 2-s2.0-0030144829

[A6] P. Scardi, S. Veneri, **M. Leoni**, R. Polini, E. Traversa, "Lattice disorder and texture in diamond coatings deposited by HFCVD on Co-cemented tungsten carbides", Thin Solid Films 290-291 (1996) 136-142. (The Netherlands)

DOI: [10.1016/S0040-6090\(96\)09062-1](https://doi.org/10.1016/S0040-6090(96)09062-1)

ISI WOS:A1996WB81900028

SCOPUS EID: 2-s2.0-13544265704

[A7] P. Scardi, **M. Leoni**, L. Bertamini, M. Marchese, "Residual stress in plasma sprayed Y_2O_3 -PSZ coatings on piston heads", Surf. and Coat. Technol. 86/87 [1] (1996) 109-115. (The Netherlands)

DOI: [10.1016/S0257-8972\(96\)02948-9](https://doi.org/10.1016/S0257-8972(96)02948-9)

ISI WOS:A1996WB32300018

SCOPUS EID: 2-s2.0-0030379653

[A8] P. Scardi, **M. Leoni**, G. Cappuccio, V. Sessa, M.L. Terranova "Residual stress in polycrystalline diamond / Ti-6Al-4V systems". Diamond and Related Mat., 6 (1997) 807-811. (The Netherlands)

DOI: [10.1016/S0925-9635\(96\)00605-X](https://doi.org/10.1016/S0925-9635(96)00605-X)

ISI WOS:A1997WY50100058

SCOPUS EID: 2-s2.0-0000622730

[A9] P. Scardi, **M. Leoni**, S. Veneri, "Residual stress analysis of ceramic coatings by means of synchrotron radiation XRD", Advances in X-Ray Analysis, 40 (1997) (on CD-ROM). (USA)

http://www.icdd.com/resources/axa/VOL40/V40_534.pdf

[A10] P. Scardi, **M. Leoni**, L. Bertini, L. Bertamini, "Residual stress in partially-stabilised-zirconia TBCs: experimental measurement and modelling" Surf. and Coat. Technol. 94-95 (1997) 82-88. (The Netherlands)

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http://www.dxcicdd.com/14/files/2014_DXCCALLFORPAPERS.pdf

[G57] **M. Leoni**, "Debye scattering formula – Still no valid alternatives after 100 years?", 23rd annual meeting Deutsche Gesellschaft für Kristallographie. Göttingen (Germany) 16-19/3/2015. (oral)

[G58] **M. Leoni**, "Analysis of the diffraction pattern of materials with complex microstructure" EUROCLAY 2015, Edinburgh (UK) 5-10/7/2015. (oral)
<http://www.euroclay2015.org/Programme>

[G59] **M. Leoni**, "Progress in microstructure analysis by diffraction", 29th European Crystallographic Meeting, ECM 29, Rovinj (Croatia) 23-28/08/2015 (poster)
http://ecm29.ecanews.org/wp-content/uploads/Book_of_abstracts_ECM29_final.compressed.pdf

[G60] **M. Leoni**, "Recent advances in powder diffraction for the non-destructive structure/microstructure analysis of (nano)materials" 9th International physics conference of the Balkan Physical Union BPU-9, Istanbul (Turkey) 24-27/8/2015. (Invited keynote)
<http://bpu9.balkanphysicalunion.com/>

[G61] **M. Leoni**, "Advances in microstructure analysis of materials with defects" XLIV annual meeting of the Italian Crystallographic Association (AIC) Vercelli, 14-18/9/2015 (invited oral)

[G62] **M. Leoni**, "A general approach to microstructure analysis in the case of decreased lattice periodicity", Size-Strain VII, Oxford (UK) 21-24/9/2015. (keynote).
<http://www.size-strain2015.org/>

[G63] **M. Leoni**, "Microstructure, stress and strain", MECASENS 2015, Grenoble (France) 30/9-2/10/2015. (Invited keynote).
<http://www.esrf.eu/home/events/conferences/mecasens2015.html>

[G64] **M. Leoni**, "Getting the most out of diffraction data: modern micro/nanostructure analysis", ICMS 2015, Valdivia (Chile) 24-28/10/2015. (Invited plenary).

[G65] **M. Leoni**, "Nondestructive micro/nanostructure analysis using diffraction", 80th Anniversary of the Deutsche Physikalische Gesellschaft, Regensburg (D) 3-6/03/2016 (invited keynote)
<http://regensburg16.dpg-tagungen.de/>

[G66] **M. Leoni**, "Advanced microstructure analysis using diffraction", VIII Национальная кристаллохимическая конференция NCCC2016, Suzdal (Russia) 30/05-03/06/2016 (Invited plenary)
<http://conferences.lcp.ac.ru/NCCC2016/>

[G67] **M. Leoni**, "Advances in microstructure analysis of materials with defects", EPDIC 15, Bari (Italy) 12-16/06/2016 (poster)
<http://www.ba.ic.cnr.it/epdic15>

[G68] **M. Leoni**, "Detailed Microstructure Information from Powder Data: A Maze or Amazing?", 65th Denver X-ray conference, Rosemont - IL (USA) Aug 15, 2016. (Invited plenary – Hanawalt Award)
<http://www.dxcicdd.com/16/>

[G69] **M. Leoni**, T. Fawcett, T. Blanton "Materials analysis using the PDF®: data mining beyond search match", 1st Pan-African Conference on crystallography, Dschang (Cameroon) Oct. 06-10, 2016 (Invited keynote)
<http://pccr1-2016.univ-dschang.org/>

[G70] **M. Leoni**, "Fast and Accurate Microstructure Analysis from Powder Diffraction", AXAA-2017 Conference, Melbourne (Australia), Feb 6-9, 2017 (invited oral)

[G71] **M. Leoni**. "Life after Scherrer formula: modern methods of nanostructure analysis using diffraction", OMEE2 conference, Lviv (Ukraine), May 29-31, 2017 (invited oral)

[G72] G. Balassone, G. Ventruti, D. Vinci, M. Lacalamita, E. Mesto, E. Schingaro, **M. Leoni**, N. Mondillo, G. Arfè, F. Nieto, M. Boni "Structural, micro- and nanop-characterization of Zn-clays in nonsulfide supergene ores (Perù and Namibia), 16th International Clay Conference ICC16. Granada (Spain), Jul 17-21, 2017

[G73] **M. Leoni**, Fast and accurate diffraction pattern calculation from disordered clays: old versus new approaches, 16th International Clay Conference ICC16. Granada (Spain), Jul 17-21, 2017 (Invited oral)

[G74] **M. Leoni**, "Detailed microstructure information from powder data", 15th Pharmaceutical Powder X-ray Diffraction Symposium (PPXR-15), Hyderabad Aug. 18-20, 2017 (invited keynote)

[G75] **M. Leoni**, "Total scattering study of chaotic/statistical microstructure with traditional crystallographic tools" 24th Congress & General Assembly of the International Union of Crystallography, Hyderabad, India, Aug 21-28, 2017 (invited keynote, one of 35, representing powder diffraction and micro/nanostructure analysis)

[G76] M. Ragni, P. Bosetti, **M. Leoni**, "Modern machine learning tools for crystallography" 24th Congress & General Assembly of the International Union of Crystallography, Hyderabad, India, Aug 21-28, 2017 (oral)

[G77] D. Vinci, G. Ventruti, M. Lacalamita, E. Mesto, **M. Leoni**, E. Schingaro, G. Balassone, F. Nieto, G. Arfè, N. Mondillo, M. Boni "Multianalytical study of saconite from the nonsulfide supergene orebody of skorpion (Namibia)", SIMP-SGI-AV-SoGel conference. Pisa (Italy), Sept 4-6, 2017 (oral)

Abstracts and contributions to major national and international schools and seminars

[H1] A. Guagliardi, **M. Leoni**, "Laboratorio di Calcolo: impiego di programmi QPA e WPPF", IV Scuola Paolo Giordano Orsini, Giornate di studio sulla caratterizzazione microstrutturale dei materiali per l'ingegneria, Trento (Italy) 20-23/6/2000 (Invited lecturer)

<http://www.ing.unitn.it/dim/corsi/2000/orsiniIV/programma.htm>

[H2] M. Vittori-Antisari, **M. Leoni**, "Laboratorio di Calcolo: TEM", IV Scuola Paolo Giordano Orsini, Giornate di studio sulla caratterizzazione microstrutturale dei materiali per l'ingegneria, Trento (Italy) 20-23/6/2000.

<http://www.ing.unitn.it/dim/corsi/2000/orsiniIV/programma.htm>

[H3] J.I. Langford, **M. Leoni**, S. Setti, "Laboratorio di diffrazione dei raggi X", V Scuola Paolo Giordano Orsini, Giornate di studio sulla caratterizzazione microstrutturale dei materiali per l'ingegneria, Trento (Italy) 17-21/6/2002 (Invited lecturer)

<http://www.ing.unitn.it/dim/corsi/2002/orsini/programma.html>

[H4] **M. Leoni**, "Analisi della texture", VI Scuola Paolo Giordano Orsini, Giornate di studio sulla caratterizzazione microstrutturale dei materiali per l'ingegneria, Trento (Italy) 7-10/6/2004 (Invited lecturer)

<http://www.ing.unitn.it/dimti/2circolare-2004-ok.pdf>

[H5] **M. Leoni**, "Analisi quantitativa e microstrutturale di strutture disordinate", Scuola di Diffrazione da Materiali Policristallini, Alessandria (Italy), 22-25/6/2004. (Invited lecturer)

[H6] **M. Leoni**, "Powder diffraction based techniques", "Powder diffraction specimen preparation" and "Diffraction laboratory", African School and Workshop on X-rays in Materials - Université Cheikh Anta Diop, Dakar (Senegal) 12-17/12/2005 (Invited lecturer)

http://alpha.science.unitn.it/~rx/Dakar_school/Lectures.htm

http://alpha.science.unitn.it/~rx/Dakar_school/7_Leoni_diff.pdf

http://alpha.science.unitn.it/~rx/Dakar_school/8_Leoni_Artioli_Masciocchi.pdf

[H7] **M. Leoni**, "Proprietà dei film sottili: analisi della tessitura e degli stress residui", I scuola applicazioni della radiazione di sincrotrone allo studio dei materiali nanostrutturati e dei film sottili (ARS1), Trento (Italy), 13-17/6/2005 (Invited lecturer)

<http://www.ing.unitn.it/dimti/ita/eventi/Scuola%20ARS1%20II%20Circolare.pdf>

[H8] **M. Leoni**, "Analisi delle tensioni residue e della tessitura" VII Scuola Paolo Giordano Orsini, Giornate di studio sulla caratterizzazione microstrutturale dei materiali per l'ingegneria, Trento (Italy) 13-16/6/2006 (Invited lecturer)

http://www.ing.unitn.it/dimti/ita/eventi/Scuola_PGO2006_2a_Circolare.pdf

[H9] **M. Leoni**, "Esercitazione Analisi Microstrutturale", Scuola di Diffrazione da Materiali Policristallini, Martina Franca, TA (Italy) - Palazzo Ducale, 26-30/6/2006. (Invited lecturer)

[H10] **M. Leoni**, "Analisi Quantitativa mediante il metodo di Rietveld", VIII Scuola Paolo Giordano Orsini, Giornate di studio sulla caratterizzazione microstrutturale dei materiali per l'ingegneria, Trento (Italy) 17-20/6/2008 (Invited lecturer)

http://www.ing.unitn.it/dimti/ita/eventi/scuola_pgo_2008.htm

[H11] **M. Leoni**, "Diffrazione per lo studio di rivestimenti e strati sottili", II

scuola applicazioni della radiazione di sincrotrone allo studio dei materiali nanostrutturati e dei film sottili (ARS2), Trieste (Italy), 22-26/4/2007 (Invited lecturer)

<http://www.elettra.trieste.it/ars2/ars2circolare2.pdf>

[H12] A. Cervellino, **M. Leoni**, "Analisi del profilo di diffrazione: metodi avanzati", II scuola applicazioni della radiazione di sincrotrone allo studio dei materiali nanostrutturati e dei film sottili (ARS2), Trieste (Italy), 22-26/4/2007 (Invited lecturer)

<http://www.elettra.trieste.it/ars2/ars2circolare2.pdf>

[H13] **M. Leoni**, P. Cairati, "Analisi quantitativa: sessione software", VIII Scuola Paolo Giordano Orsini, Giornate di studio sulla caratterizzazione microstrutturale dei materiali per l'ingegneria, Trento (Italy) 17-20/6/2008 (Invited lecturer)

http://www.ing.unitn.it/dimti/ita/eventi/scuola_p_g_o_2008.htm

[H14] **M. Leoni**, "Structure/microstructure analysis using X-ray diffraction", University of Innsbruck, Faculty of geo- and atmospheric sciences, Mineralogy and petrography (Austria), 11/12/2008. (invited seminar).

[H15] **M. Leoni**, "Diffraction: single crystal vs powders", "Diffraction from polycrystalline materials" and "Diffraction laboratory", 2nd African School and Workshop on X-rays in Materials - Université Cheikh Anta Diop, Dakar (Senegal) 19-24/01/2009 (Invited lecturer)

<http://events.unitn.it/en/xrm09>

http://events.unitn.it/sites/events.unitn.it/files/download/xrm09/Program_Dakar_short_0.pdf

[H16] **M. Leoni**, "Structure & microstructure analysis of nanocrystalline powders" and "Whole Powder Pattern Modelling of materials microstructure using PM2K". 10th International school and workshop of crystallography "Role of synchrotron radiation in the advancement of sciences", Gulf of Suez (Red Sea), Ain Soukhna (Egypt) 1-5/2/2009 (Invited lecturer)

<http://www.saip.org.za/documents/Egypt-Workshop20090201.pdf>

[H17] **M. Leoni**, "Line Profile Analysis in the 3rd millennium: what can we learn from peak profile shape?", Diamond Light Source, Didcot (UK) 29/9/2009. (invited seminar)

<http://www.diamond.ac.uk/Home/Events/2009/Defects.html>

[H18] **M. Leoni**, "Structure/microstructure and their interplay in nanomaterials and layered systems", Lomonosov Moscow State University, Nanotechnology Education and Research Center, Moscow (Russia) 15/12/2010. (invited seminar)

<http://nano.msu.ru/en/research/seminars/prospects/seminar07>

[H19] **M. Leoni**, "Neutron and X-ray synchrotron stress analysis", IX Scuola Paolo Giordano Orsini, Giornate di studio sulla caratterizzazione microstrutturale dei materiali per l'ingegneria: analisi delle tensioni residue, Trento (Italy) 29/6-1/7/2010 (Invited lecturer)

<http://www.unitn.it/en/ateneo/evento/2143/ix-scuola-paolo-giordano-orsini>

[H20] **M. Leoni**, P. Scardi, "Metodi diffrattometrici per l'analisi degli stress residui: Software per X-ray Residual Stress Analysis: sessione pratica", IX Scuola Paolo Giordano Orsini, Giornate di studio sulla caratterizzazione microstrutturale dei materiali per l'ingegneria: analisi delle tensioni residue, Trento (Italy) 29/6-1/7/2010 (Invited lecturer)

<http://www.unitn.it/en/ateneo/evento/2143/ix-scuola-paolo-giordano-orsini>

[H21] **M. Leoni**, "Information on imperfections". 43rd Erice Crystallographic Course "The Power of Powder Diffraction", Ettore Majorana Centre, Erice (Italy) 2-12/6/2011. (Invited lecturer)
<http://www.iucr.org/resources/commissions/powder-diffraction/schools/erice2011>

[H22] **M. Leoni**, "Diffraction from polycrystalline materials", and "Diffraction, laboratory", 3rd African School and Workshop on X-rays in Materials - Université Cheikh Anta Diop, Dakar 23-28/02/2012 (Invited lecturer)
<http://events.unitn.it/en/xrm2012>

[H23] **M. Leoni**, "DIFFaX+: faulted and modular structures" and "Stacking faults in materials: principles and methods (in reciprocal space)", The International Summer School on "Diffraction at the Nanoscale: Nanocrystals, Defective & Amorphous Materials", Villigen (Switzerland), 24-30/5/2010. (invited lecturer)
http://journals.cambridge.org/download.php?file=%2FPDJ%2FPDJ25_03%2FS0885715600000348a.pdf&code=0e0166df05748e55892e95a86818a91c

[H24] **M. Leoni**, "Microscopy without microscope", Max Planck Institut für Kohlenforschung, Abteilung Schüth, Muelheim (Germany), 6-9/8/2012. (invited seminar)

[H25] **M. Leoni**, "Whole Powder Pattern Modelling I", "Whole Powder Pattern Modelling II" and "PM2K demo", 2012 AIC International School joined with "Paolo Giordano Orsini" School, "Structure, Microstructure, Nanostructure", exploiting the potential of powder diffraction techniques. Trento (Italy) 15-20/9/2012 (chair, organizer and invited lecturer)
http://2012.aicschool.org/ext_files/timetable.pdf

[H26] **M. Leoni**, P. Scardi, "PM2K: the WPPM software", Lachlan's software fayre @ EPDIC 13 conference, Grenoble (France) 28-31/10/2012.
<http://epdic13.grenoble.cnrs.fr/spip.php?article26>

[H27] **M. Leoni**, "Microstructure analysis from X-ray diffraction patterns", Université des Sciences et de la Technologie Houari Boumediene, Faculté de Physique, Algiers (Algerie), 17/04/2013 (invited seminar)

[H28] **M. Leoni**, "Microstructure analysis by X-ray diffraction" and "PM2K: the WPPM software", University of Rennes, 07-18/10/2013. (invited seminars)

[H29] **M. Leoni**, "Old is good! 100 years of X-ray diffraction for microstructure analysis" in "Methods of Characterization of Materials", II Workshop 2013-2014, Polytechnic of Milan, 20/06/2014. (invited lecture)

[H30] **M. Leoni**, "Quantitative characterization of structure and nanostructure of materials with stacking defects" Winter Workshop on Microstructure Characterization and Modeling for Solar Cells", am Spitzingsee (Germany) 22-26/2/2015 (invited oral)

[H31] **M. Leoni**, D. Shovkun, P. Godin, S. Romero Baivier, "Phase composition of high-temperature refractories", International workshop "State of the art and challenges in thermal and mechanical modelling of ceramic materials", Trento (Italy) 20/3/2015 (invited oral)

[H32] **M. Leoni**, "Analyse microstructurale avec diffraction", 3^{ème} Ecole sur la détermination de structure Cristalline à partir des données de diffraction:

Application sur poudre cristalline", Sousse (Tunisie) 9-12/4/2015 (invited lecturer)

[H33] **M. Leoni** "Microstructure analysis I: theory" in the 6th Workshop "Materials Characterisation by the Combined Analysis", Trento (Italy) 19-23/10/2015 (invited lecture)

[H34] **M. Leoni**, "Stress-strain and data modelling", Workshop of the 8th International Conference on Mechanical Stress Evaluation by Neutrons and Synchrotron radiation, MECASENS Grenoble (F) 28/9-2/10/2015 (Invited lecturer)

[H35] **M. Leoni**, "X-ray diffraction for the analysis of materials", in multiple lectures. Eighth International Petra School of Physics, Amman (JO), 11-14/04/2016 (invited lecturer. Prize from HRH Prince Hassan of Jordan)

[H36] **M. Leoni**, "What can we learn from the diffraction peak profiles?", International seminars of the Australian X-ray Analytical Society, Melbourne (Australia), 17/8/2016 (invited seminar)

[H37] **M. Leoni**, "Microstructure analysis", Powder Diffraction School 2016, Modern Synchrotron Methods, satellite of the 30th Conference of the European Crystallographic Association. Villigen (CH) 22-26/8/2016 (invited lecturer)

[H38] **M. Leoni**, "Polytypism, defects, phase transitions, complexity and powder diffraction", 2016 AIC International Crystallography School "Polymorphism, stability and phase transitions in crystals: theory, experiments, applications", Rimini (Italy) 7-11/9/2016 (invited lecturer)
<http://2016.aicschool.org>

[H39] **M. Leoni**, "The ICDD Grant-in-Aid Program", ICDD Grant-in-Aid Workshop, satellite of the "XIII International Conference on Crystal Chemistry of Intermetallic Compounds", Lviv (Ukraine) 23-24/9/2016 (invited)

[H40] **M. Leoni**, "Introduction to microstructure analysis", "Workshop on microstructure analysis by Powder Diffraction.", Australian synchrotron, Melbourne (Australia) 4/2/2017 (I was the only invited lecturer)

[H41] **M. Leoni**, "The Whole Powder Pattern Modelling", "Workshop on microstructure analysis by Powder Diffraction.", Australian synchrotron, Melbourne (Australia) Feb 4, 2017 (I was the only invited lecturer)

[H42] **M. Leoni**, "Extracting faulting information from a powder pattern", "Workshop on microstructure analysis by Powder Diffraction.", Australian synchrotron, Melbourne (Australia) 4/2/2017 (I was the only invited lecturer)

[H43] **M. Leoni**, "Analyse de la microstructure par Diffraction des Rayons X", "4^{ème} Ecole sur la détermination de structure Cristalline à partir des données de diffraction: Application sur poudre cristalline", Hammamet (Tunisie) 7-9/4/2017 (invited lecturer, in French)

Other publications

[I1] P. Scardi, **M. Leoni**, G. Cappuccio, J.I. Langford, R.J. Cernik, "Residual stress gradient in thin films and thick ceramic coatings for metallurgical applications". p. 654-655 in *Synchrotron Radiation Annual Report*, Vol. 2 (1994-95). Edited by I.H. Munro, DRAL, UK.

[I2] P. Scardi, **M. Leoni**, S. Veneri, G. Cappuccio, V. Sessa, "Microstructure and residual stress of diamond coatings on Ti6Al4V alloy and WC-Co". p. 869-870 in *Synchrotron Radiation Annual Report*, Vol. 2 (1995-96). Edited by R.J. Cernik & E. Towns-Andrews, DRAL, UK.

[I3] P. Scardi, **M. Leoni**, I.B. Harris, "Residual Stress Gradient in Ceramic Coatings for Thermal Engine Applications". p. RB7952, in *ISIS 1997 Experimental Reports*, Council for the Central Laboratory of the Research Council (CCLRC), UK (1997).

[I4] P. Scardi, **M. Leoni**, S. Veneri, "Residual stress gradients in ceramic coatings". p.330-331, in *Annual Report and Scientific Reports 1996-97*. Edited by E. Towns-Andrews, B. Murphy, S. Maginn, S. Collins & L. Welbourne, Council for the Central Laboratory of the Research Council (CCLRC), UK (1998).

[I5] B. Forti, M. Prudenziati, A.F. Gualtieri, **M. Leoni**, C.C.Tang, "Kinetics of decomposition of Ag in glass-based thick film sensors by real-time powder diffraction", p. 286-287, in *Synchrotron radiation department Scientific Reports, 1997-98*, CLRC Daresbury Laboratory, UK (1998).
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