DIPARTIMENTO DI SCIENZE DI BASE
E APPLICATE PER L' INGEGNERIA

SAPIENZA
UNIVERSITÀ DI ROMA

Curriculum Vitae

Enrica Chiadroni

I am currently, since September 2021, **Associate Professor** at the Department of Basic and Applied Sciences for Engineering at **Sapienza, University of Rome**.

I have been **Senior Scientist at Laboratori Nazionali di Frascati (LNF) – INFN** until August 2021. Since January 2011 I have been working as staff scientist at the SPARC_LAB Test Facility of the LNF, where I have coordinated the Machine Operation of the SPARC photo injector from January 2015 to June 2018. At SPARC_LAB I have been the reference person for the THz radiation source [1], which was included in the CalipsoPlus program until October 2021.

I work in the SPARC group at LNF since March 2001, when I started the **Master Thesis in Physics** with a study on **Free-Electron Lasers**. I got the Master Thesis in June 2002 at the University of Rome La Sapienza. I defended the **PhD in Physics** at the University of Rome Tor Vergata in April 2006 with a thesis on the **Bunch Length Characterization at the TTF VUV-FEL** [2] (DESY, Hamburg).

In this framework I have gained an expertise on radiation-based techniques to measure both transverse and longitudinal beam properties. I have been collaborating with DESY [3] on an experiment, partially funded by the CSN5 of INFN, to measure the beam emittance by means of Optical Diffraction Radiation in a non-intercepting way at FLASH, DESY – Hamburg [4].

From 2013 to 2015 I have been Local Coordinator of SL_Femtotera, an experiment funded by the CSN5 of INFN, for the development and application of a high peak power THz source at SPARC_LAB [1,5], carrying to the first experiment with users at SPARC_LAB. I participated to the 38th International Conference on Infrared, Millimeter and Terahertz Waves IRMMW-THz 2013 as invited speaker on *The SPARC_LAB High Peak Power THz Source: Different Methods Of Generation And Characterization*.

In 2013 I have been awarded of the "**FIRB 2012**" grant, a 3-years fund from the Italian Minister of Research, concerning the development of experiments on the acceleration of high brightness electron beam in a plasma-based accelerator, to be performed at SPARC_LAB. In this context, I have been the **Principal Investigator** of the research activities concerning the plasma-based acceleration experiments foreseen at SPARC_LAB.

From 2015 till 2023 I have been the **National Coordinator** of SL_COMB first and **SL_COMB2FEL** then, two experiments, funded by the CSN5 of INFN, for the characterization manipulation, transport and application of a plasma-based accelerator driven by high brightness multi-bunch trains at SPARC_LAB [6, 7] to pilot a SASE FEL. The success of the aforementioned projects is documented by the proof-of-principle of the first SASE and Seeded FELs driven by a PWFA [8,9]. In this regard, I have participated to several **International Conferences as Invited Speaker**, among which:

- 13th International Particle Accelerator Conference (IPAC2022): *Progress Towards Demonstration of a Plasma Based FEL* (Plenary talk)
- 9th International Particle Accelerator Conference (IPAC2018): *Status of Plasma-based Experiments at the SPARC_LAB Test Facility* (Parallel session)
- 3rd European Advanced Accelerator Concepts (EAAC): *Overview of Plasma Lens Experiments and Recent Results* (Plenary talk)

I am currently National Coordinator of the 4-years experiment SL_BetaTest, funded by CSN5 of INFN (2024-2027), to study the experimental proof of principle of a plasma-based undulator using betatron radiation.

In 2015 a two-years project proposal within the cooperation agreement between ASRT (Egypt) and INFN has been accepted for funding with title "THz Radiation for medical and other applications in Egypt, Italy and beyond" and I have been the corresponding person for the INFN site.

In November 2015 EU has funded a 4-years Design Study for the realization of a plasma-based user facility, named as **EuPRAXIA**; **from Nov. 2015 till Dec. 2018** I have been **leader** of the **Work Package** 5, concerning the "**Electron beam design and optimization**" [10].

Since November 1st, 2022, I am **Co-Leader of the Work Package** 11 – **Applications**, for the **EuPRAXIA - PP** (Preparatory Phase) project, funded by EU.

In the framework of the Italian pillar **EuPRAXIA@SPARC_LAB**, I am **Leader of the working area studying the injector and ancillary components**.

I have been **Member of the Steering Committee and Collaboration Board of EuPRAXIA** (01-11-2015/31-12-2018), representing INFN.

I am now **Member**, representing Sapienza University, **of the Steering Committee for EuPRAXIA - PP** (Preparatory Phase), being included in the European Strategy Forum on Research Infrastructures (ESFRI) Roadmap for the 2021.

I have been **Member of the Scientific Advisory Board** of the International Particle Accelerator Conference (**IPAC**) in the past editions IPAC2023, IPAC2022, IPAC2021, …, and since IPAC2018.

Since June 2017 I am **Member** of both the Scientific Program Committee (**SPC**) and the International Organizing Committee (**IOC**) of **LINAC** conference.

Since May 2023 I am **Member of** the Board of the Accelerator Group in the European Physical Society (**EPS-AG**).

I have been **Chair of the Scientific Program Committee** of the 6th European Advanced Accelerator Concepts (**EAAC2023**) Conference (La Biodola, Isola d'Elba - Italy, September 17-23, 2023).

I am currently member of the **Organizing Committee and Scientific Program Committee of IPAC'25** and **Chair** of the MC1: *Beam Dynamics, Extreme Beams, Sources and Beam related technology*.

In addition, I have been involved in the organization of several other international conferences among which:

- 2009 **Chair person** of the **Working Group** on Manipulation and diagnosis of high brightness beams, at the international workshop on "The Physics and Applications of High Brightness Electron Beams" in Maui – Hawaii;
- 2015 **Co-chairperson in the SPIE Optics+Optoelectronis Conference** in Prague of the session dedicated to Novel Source Developments;
- 2015 **Co-chairperson** in the 2nd European Advanced Accelerator Concepts (**EAAC2015**) of the **Working Group** on High-gradient plasma structures Advanced beam diagnostics.

I have been **lecturer at the CERN Accelerator School (CAS)** in Geneva (Nov. **2015**) and in Hamburg (June **2016**) on **High Brightness Photo-injectors**. I have been **lecturer at the International School of Particle Accelerators (Erice 2023)** with 2 lectures on **plasma acceleration**.

I am co-author of more than 250 papers on international, peer reviewed journals, among them several are on a Nature Journal (W. Ackermann et al., *Operation of a free-electron laser from the extreme ultraviolet to the water window*, Nature Photonics 1, 336–342 (2007); F. Giorgianni, E. Chiadroni et al., *Strong nonlinear terahertz response induced by Dirac surface states in Bi2Se3 topological insulator*, Nature Communications 7, 11421 (2016); R. Pompili et al., *Femtosecond dynamics of energetic electrons in high intensity laser-matter interactions*, Scientific Reports 6, 35000 (2016); R. Pompili et al., *Energy spread minimization in a beam-driven plasma wakefield accelerator* (2021) Nature Physics, 17 (4), pp. 499-503); R. Pompili, et al., *Free-electron lasing with compact beam- driven plasma wakefield accelerator* (2022), Nature, doi: 10.1038/s41586-022-04589-1), ranging from high brightness beam dynamics, free electron laser physics, linac-based THz radiation sources, transverse and longitudinal electron beam diagnostics, advance acceleration techniques.

On May 23rd, 2023 I have achieved the **National Scientific qualification as full professor** in the Italian higher education system, in the call 2021/2023 (Ministerial Decree n. 553/2021 and 589/2021) for the disciplinary field of 02/A1 - Experimental physics of fundamental interactions. (Academic Recruitment Field 02/A - Physics of fundamental interactions, according to the national classification).

My h-index is 34 (as counted in SCOPUS).

I served as Member of the Local Organizing Committee in several conferences among which:

- Channeling 2012, 2014, 2016, 2018
- CERN School on Excellence in Detectors and Instrumentation Technologies 2015 (EDIT2015)
- 1st European Advanced Accelerator Concepts (EAAC 2013)
- 3rd International Conference Frontiers in Diagnostic Technologies (ICFDT3) – 2013
- 5th International Conference Frontiers in Diagnostic Technologies (ICFDT5) – 2018
- Member of the Programme Committee of SPIE Optics + Optoelectronic Conferences, in the section dedicated to Advances in X-ray Free-Electron Laser Instrumentation, April 13-16, 2015 Prague
- 2nd European Advanced Accelerator Concepts (EAAC 2015), September 2015 – La Biodola "Physics and Applications of High Brightness Beams" Conference, Creta, April 8- 12, 2019

I am also reviewer on Nuclear Instruments and Methods in Physics Research, Journal of Applied Physics, Physical Review Letters, Phys. Rev. Accel. and Beams and Journal of Modern Optics.

I have been Reviewer of Project Research and Development proposals for the Science and Technology Facilities Council (STFC) and the Helmholtz Association for selecting the best application for Helmholtz Young Investigators Groups.

In October 2023 I have been nominated as External Reviewer of the Scientific and Technological Objectives of the CERN AWAKE Project.

I have been supervisor of several Master and PhD thesis' and I am **Member of the Collegio Docenti** of the PhD studentship in Accelerator Physics at Sapienza University.

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PERSONAL WEBPAGE: https://orcid.org/0000-0003-0350-8590

References

[1] Giorgianni, F., Chiadroni, E., et al., Strong nonlinear terahertz response induced by Dirac surface states in Bi2Se3 topological insulator, Nature Communications, 7, art. no. 11421 (2016).

[2] Chiadroni, E., Bunch Length Characterization at the TTF VUV-FEL, TESLA-FEL 2006-09 (2006).

[3] Ackermann, W., Chiadroni, E., et al., Operation of a free-electron laser from the extreme ultraviolet to the water window, Nature Photonics, 1 (6), pp. 336-342 (2007).

[4] Cianchi A, Castellano M, Catani L, Chiadroni E, Honkavaara K, Kube G, Non-intercepting electron beam size monitor using optical diffraction radiation interference. Physical Review Special Topics Accelerators and Beams, vol. 14, ISSN: 1098-4402, doi: 10.1103/PhysRevSTAB.14.102803 (2011).

[5] Chiadroni E., Cianchi A., Ferrario M., Mostacci A., Pompili R., Shpakov V., A versatile THz source from high-brightness electron beams: Generation and characterization. Condensed Matter, vol. 5, p. 1-10, ISSN: 2410- 3896, doi: 10.3390/condmat5020040 (2020).

[6] Shpakov V., et al., (2021). First emittance measurement of the beam-driven plasma wakefield accelerated electron beam. Phys. Rev. Accel. Beams **24**, ISSN: 2469- 9888, doi: 10.1103/PhysRevAccelBeams.24.051301.

[7] Pompili, R., et al., (2021). Energy spread minimization in a beam-driven plasma wakefield accelerator. NATURE PHYSICS, vol. 17, p. 499-503, ISSN: 1745-2473, doi: 10.1038/s41567-020-01116-9

[8] Pompili R., et al., (2022), Free-electron lasing with compact beam-driven plasma wakefield accelerator. Nature, ISSN: 0028-0836, doi: 10.1038/s41586-022-04589-1.

[9] Galletti M., et al., Stable Operation of a Free-Electron Laser Driven by a Plasma Accelerator, Physical Review Letters **129**, 234801 (2022).

[10] Nghiem P. A. P., et al., (2020). Toward a plasma-based accelerator at high beam energy with high beam charge and high beam quality, Phys. Rev. Accel. Beams **23**, 031301.

CV Andrea Michelotti

Il sottoscritto ha oltre 10 anni di esperienza nell'industria dei semiconduttori, coprendo sia l'hardware che il software, con competenze che spaziano dallo sviluppo di software a basso livello all'integrazione e debug, progettazione hardware e ingegneria di prodotto. Ha ricoperto diversi ruoli di leadership tecnica in progetti di alto livello, curando l'intero ciclo di sviluppo del prodotto, dal concept iniziale alla realizzazione pratica.
Dal 2012 lavora presso INFN-LNF, dove progetta, sviluppa e manutiene sistemi di controllo per grandi infrastrutture. Ha una profonda conoscenza di linguaggi di programmazione come C, C++ e un'ampia esperienza nella co-progettazione HW/SW, modellazione e co-verifica.

Responsabile del Servizio Sistemi di controllo dei laboratori INFN-LNF
Il sottoscritto è responsabile del servizio sistemi di controllo presso INFN-LNF – divisione acceleratori. Progetta, sviluppa e mantiene tecnologie di controllo avanzate, tra cui !CHAOS ed EPIK8s (EPICS+K8s). Ha introdotto strumenti moderni nel controllo di acceleratori come Kubernetes, Kafka e Grafana per migliorare la produttività e la disponibilità dei servizi per le infrastrutture scientifiche.

Esperienze professionali:

- **INFN (2014 – Presente)**
  Tecnologo servizio sistemi di controllo
  Progetta, sviluppa e mantiene i sistemi di controllo infrastrutture acceleratrici dei Laboratori Nazionali di Frascati.
- **Consorzio Laboratorio Nicola Cabibbo (2012 – 2014)**
  Esperto sviluppatore C/C++
  Ha contribuito allo sviluppo di infrastrutture di controllo e DAQ per grandi esperimenti scientifici e dispositivi embedded.
- **Leonardo (2011 – 2012)**
  Consulente Senior Embedded Software Engineer
  Responsabile dello sviluppo firmware per il progetto SISTRI, un sistema di tracciamento dei rifiuti tossici per il ministero dell'ambiente.
- **DRS Tactical Systems (2012)**
  Consulente Senior Embedded Software Engineer
  Sviluppa firmware per un dispositivo di tracciamento prototipo, personalizzazione di driver a basso livello e porting di uClinux.
- **BlueBee B.V. (2010 – 2011)**
  Co-fondatore e Senior HW & SW Designer
  Progettazione di sistemi multicore eterogenei e reconfigurabili.
- **ATMEL Roma (2001 – 2010)**
  Responsabile della co-progettazione HW/SW
  Architetto principale dei DSP di Atmel, responsabile di test, validazione e sviluppo di un RTOS personalizzato per Atmel.
- **INFN (1997 – 2000)**
  Tecnologo HPC
  Ha contribuito alla definizione e progettazione dell'architettura del supercomputer APEmille e APEnext.

- **Nergal (1995 – 1997)**
  Progettista software
  Ha sviluppato applicazioni C/C++ per piattaforme Windows e Linux, contribuendo alla valutazione e ottimizzazione di compilatori DSP.

Educazione:

- **INFN**
  borsa di studio HPC
- **Università degli Studi di Roma "La Sapienza"**
  Laurea in Fisica, 110/110
- **Istituto J.F Kennedy Roma**
  Maturità scientifica

Brevetti e Pubblicazioni:

- Patent Granted Awarded (US 7,437,540 Oct. 14, 2008) covering the architecture of mAgicV floating-point DSP and its integration into Diopsis System on Chip
- co-autore di più di 35 articoli su riviste internazionali

Lingue:

- Italiano (Madrelingua)
- Inglese (Professionale)
- Francese (Base)

Data Firma

Frascati, 30/09/2024

europass

Ramon Orrù

WORK EXPERIENCE

01/09/2022 – CURRENT Frascati, Italy

TECHNOLOGIST NATIONAL INSTITUTE FOR NUCLEAR PHYSICS - LNF - COMPUTING & NETWORK INFRASTRUCTURE SERVICE

- Definition of cloud and virtualization architectures to support specific workloads (e.g. particle accelerators control systems, identity management systems, general purpose systems).
- Design, deploy and maintenance of OKD clusters
- OKD clusters fully automated setup using Terraform and Ansible.
- Design, deploy and maintenance of software-defined storage systems based on Ceph.
- Design, deploy and maintenance of oVirt clusters.
- Design, deploy and maintenance of VMware vSphere clusters.
- Design, deploy and maintenance of Proxmox Virtual Environment clusters
- Virtualized infrastructure provisioning automation using Terraform.
- Installation and configuration management of the most commonly used Linux distributions using Ansible.
- Supporting IT activities of the local experiments.
- Participation in scientific dissemination activities targeting secondary school and university students.

Website www.lnf.infn.it

01/09/2021 – 31/08/2022 Rome, Italy

CLOUD CONSULTANT RED HAT ITALY - GLOBAL PROFESSIONAL SERVICES - INFRASTRUCTURE TEAM

- Red Hat Openstack Platform installation and maintenance.
- Red Hat Openshift Container Platform installation and maintenance.
- CloudForms Management Engine installation and maintenance.
- Red Hat Enterprise Linux 8 hardening.
- Ansible automation.
- Red Hat Enterprise Virtualization installation and maintenance.

Website https://www.redhat.com/it

01/09/2020 – 31/08/2021 Rome, Italy

CLOUD ENGINEER KONICA MINOLTA GLOBAL R&D - HYBRID CLOUD ENGINEERING TEAM

- Helping several other company departments to embrace cloud computing technologies, finding the correct paradigms and architecture responding to specific use cases, actively supporting the team members while adopting new platform and tools.
- Design, deploy and maintenance of OpenStack based IaaS platforms
- Design, deploy and maintenance of software-defined storage system based on Ceph
- Design, deploy and maintenance of object storage systems based on Nooba
- Multi-cloud infrastructure provisioning automation using Terraform
- Installation and configuration management of the most commonly used Linux distributions using Ansible.
- Multi-cloud infrastructure and workload orchestration using Cloudify

Website https://research.konicaminolta.com/

21/02/2019 – 31/08/2020 Rome, Italy

SENIOR CLOUD ENGINEER PAR-TEC S.P.A.

- Design, deploy and maintenance of IaaS platform based on Red Hat Openstack Platform.
- Design, deploy and maintenance of software-defined storage systems based on Red Hat Ceph Cluster.
- Linux systems setup, maintenance and configuration: Red Hat Enterprise Linux7/8, CentOS 7/8, Ubuntu 18.04/20.04.
- Definition of professional courses aiming to support customer during the adoption of Red Hat Openstack Platform.
- Installation and configuration management automation with Ansible.

- Design, deploy and maintenance of a log ingestion system using Fluent-bit, Kafka, Zookeeper, ELK stack.
- Associate team members sysadmin mentoring.

Website www.par-tec.it

06/11/2017 – 20/02/2019 Rome, Italy

LINUX SYSTEM ADMINISTRATOR IMMOBILIARE.IT - SYSTEMS ADMINISTRATION TEAM

- Linux systems administration: Debian, Ubuntu.
- Deploy and maintenance of oVirt clusters.
- Deploy and maintenance of Openstack clusters.
- Remote distributed script execution using Serf.
- Ceph clusters deployment and benchmarking.
- Replicated MySQL clusters administration.
- Enterprise web services full infrastructure stack management.
- Data Center racking, cabling, installation and maintenance.
- Bash scripting for system administration.
- Configuration management using SaltStack.

Website www.immobiliare.it

01/09/2014 – 03/11/2017 Frascati, Italy

WEB DEVELOPER - LINUX SYSTEM ADMINISTRATOR NATIONAL INSTITUTE FOR NUCLEAR PHYSICS - LNF - COMPUTING & NETWORK SERVICE

- Development of a experimental distributed e-voting system ensuring strong security and high degree of anonimity (https://baltig.infn.it/groups/dress).
- !CHAOS (http://chaos.infn.it) experimental distributed control system working group participation.
- Corporate cloud (Openstack-based) working group participation.
- Identity management system working group participation.
- Linux systems administration: CentOS, Ubuntu.
- Management and maintenance of virtual data centers based on oVirt.
- Management and maintenance of virtual data centers based on VMware vSphere (ESXi, vCenter).
- Openshift Origin clusters deployment and maintenance.
- MongoDB clusters deployment and maintenance.
- MariaDB Galera clusters deployment and maintenance.
- Percona XtraDB clusters deployment and maintenance.
- LAMP environments deployment and maintenance.
- Joomla 3.x instances deployment and maintenance.
- Moodle (e-learning platform) deployment and maintenance.
- Data center racking, cabling, installation and maintenance:
    - Cisco UCS blade systems.
    - Dell PowerEdge rack systems.
- System automation using Bash.

Website www.lnf.infn.it

02/04/2013 – 31/08/2014 Pomezia, Italy

PHP DEVELOPER - LINUX SYSTEM ADMINISTRATOR BABEL S.R.L.

- Linux systems administration: Red Hat Enterprise Linux, CentOS.
- RoundCube webmail extension plugin development.
- Design, deploy and maintenance of a LTO tape backup system for sensitive data long-term achiving.
- Installation, configuration and maintenance of RoundCube instances.
- Installation, configuration and maintenance of HTTP Apache servers.
- Installation, configuration and maintenance of LDAP 389 DS servers.
- Installation, configuration and maintenance of CalDAV/CardDAV DAViCal servers.
- Data center racking, cabling, installation and maintenance:
    - HP Proliant rack systems.
- Installation, configuration and maintenance of Git servers.
- Bash/Perl scripting for performance analysis and monitoring of Linux systems.

01/02/2005 – 30/04/2005 Rome, Italy

SOFTWARE DEVELOPER VENUSIA

Web application user requirements definition, coding

01/04/2007 – 07/07/2009 Frascati, Italy

ANALISTA PROGRAMMATORE NATIONAL INSTITUTE FOR NUCLEAR PHYSICS - LNF

Working in an ERP systems development team:

- Requirement gathering and analysis
- Prototyping
- Design
- System requirements generation
- Coding
- Test data gathering
- Documentation drafting
- Introduction course teaching
- Bootstrap support to the customerduring the early system adoption.

EDUCATION AND TRAINING

03/07/2020

GOOGLE CLOUD CERTIFIED ASSOCIATE CLOUD ENGINEER CERTIFICATION Google

Website https://www.credential.net/fa951c4e-bf6a-4678-af41-2ed244ac0eaa

15/04/2013 Roma, Italy

MASTER'S DEGREE IN COMPUTER ENGINEERING Università degli Studi di Roma "Tor Vergata"

Website www.uniroma2.it

26/07/2006 Roma, Italy

BACHELOR'S DEGREE IN COMPUTER ENGINEERING Università degli Studi di Roma "Tor Vergata"

Website www.uniroma2.it

30/06/1999

PERITO INDUSTRIALE CAPOTECNICO - INDIRIZZO INFORMATICO Istituto Tecnico Industriale Statale "Othoca"

07/2016

M202: MONGODB ADVANCED DEPLOYMENT AND OPERATIONS MongoDB University

04/2017

M312: DIAGNOSTICS AND DEBUGGING MongoDB University

03/2015

M102: MONGODB FOR DBAS MongoDB University

03/10/2016 – 06/10/2016 Bari, Italy

CLOUD COMPUTING STORAGE SOLUTIONS INFN - Sezione di Bari

10/2015 – 06/2016 Frascati, Italy

ENGLISH GENERAL PROGRAM 2 STEP 2 InLingua

10/2014 – 06/2015 Frascati, Italy

ENGLISH GENERAL PROGRAM 2 STEP 1 InLingua

19/05/2008 – 23/05/2008 Frascati, Italy

ORACLE DATABASE 10G: PROGRAM WITH PL/SQL ED.2 PRV Oracle University

02/06/2008 – 06/06/2008 Frascati, Italy

11I FINANCIAL APPLICATIONS OVERVIEW ED. 2.1 PRV Oracle University

02/07/2007 – 06/07/2007 Roma, Italy

ORACLE DEVELOPER Software Design

LANGUAGE SKILLS

Mother tongue(s): **ITALIANO**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
INGLESE	B1	C1	B1	B1	C1
FRANCESE	A2	A2	A1	A1	A1
SPAGNOLO	A1	A2	A1	A1	A1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user