Curriculum Vitae

Name:
Massimo Sorbi

Nationality:
Italian

Education:
Laurea in Physics at Università degli Studi di Milano in 1994, “Magna cum Laude”,
with experimental thesis in superconducting magnets

Positions:

- Fellowship for designing a superconducting cyclotron: 1994-1996
- Contract as “Technical engineer” in INFN for the design and construction of the Superconducting Barrel Toroid of the ATLAS magnets (CERN experiment): 1996-2001
- Contract from Florence University for the design of a superconducting magnet for the deflection of cosmic rays in interplanetary missions: 2002-2004
- Researcher at Physics Department of Università degli Studi di Milano (permanent position): 2004-2019
- Professor associated (second level) at Physics Department of Università degli Studi di Milano (permanent position): 2019-on

Main activities:

- Design, follow up of the construction and commissioning of the superconducting Barrel Toroid of ATLAS Magnet (1996-2002)
- Design of superconducting magnets to be used as magnetic lens in interplanetary missions (2002-2004)
- Design of high field Nb_3Sn superconducting dipoles (bore field up to 16 T) for the post-LHC era (NED dipole [2004-2006], and Future Circular Collider (2015-on]). The activity regards both electromagnetic design and quench protection study.
- Design, construction and test of a fast ramped superconducting dipole (bore field ramp rate: 1 T/s) for SIS300 of the FAIR Facility in Darmstadt (Germany) (2007-2014)
- Quench protection study of high field Nb_3Sn superconducting “low-beta” quadrupoles for HiLuminosity LHC (2012-2016)
- Design, construction and test of High Order Corrector superconducting magnets for the High Luminosity LHC program (2016-on)
- Design of the high field Nb3Sn, superconducting dipole for the Future Circular Collider hh program.

Responsibility activities:

- Responsible of the Superconducting Magnet Group INFN-LASA Group
- National Responsible in INFN for the experiment Magix, with also the Local Responsibility for the design and construction of superconducting High Order magnets for HighLuminosity LHC
- Local Responsible in INFN for activity in EuroCirCol (project co-founded by European Commission - H2020), for the activity in the design of a 16 T superconducting dipole in Nb_3Sn for FCC.

- Principal Investigator for Università degli Studi di Milano of the Italian PNRR program “IRIS - Innovative Research Infrastructure on applied Superconductivity”, with responsibilities for the activities on the construction of the new Milan infrastructure for developing superconducting magnets.

Didactic activities:

- Teacher of the advanced course “Applied Superconductivity” in the Master Degree in Physics at Milan University (2009-on)
- Teacher of fundamental courses in electromagnetism and optics in the Bachelor Degree in Physics at Milan University (2004-on)
- Relators of about 20 thesis of students in Physics at Milan University
- Tutor of 4 PhD students in Physics at Milan University

INFORMAZIONI PERSONALI Marco Prioli

POSIZIONE RICOPERTA Tecnologo INFN

ESPERIENZA PROFESSIONALE

Da novembre 2018 ad oggi

Tecnologo con contratto di lavoro a tempo indeterminato

INFN - LASA, Milano.

Membro del gruppo per lo sviluppo di magneti superconduttori per acceleratori (*Capogruppo: Prof. M. Sorbi*) con i seguenti incarichi:

1) Principal investigator della call INFN di gruppo 5 **SIG** e project leader della collaborazione internazionale **EuroSIG**, project addendum 1
   - Coordinamento della call INFN di gruppo 5 **SIG** per lo sviluppo di tecnologie chiave per gantry agli ioni nell'ambito di innovativi trattamenti antitumorali adroterapici, gestione dei fondi di ricerca e rendicontazione periodica delle attività. Budget: 1M€, 26 ricercatori/tecnologi (11 FTE 2024), 10 tecnici
   - Coordinamento del progetto per la progettazione, realizzazione e test a freddo del primo magnete superconduttore curvo cosθ (SDM-c) all'interno della collaborazione internazionale **EuroSIG** tra INFN, CERN, CNAO e MedAustron. Riunioni settimanali per la gestione delle linee di ricerca elettromagnetica (realizzazione bobine superconduttrici) e meccanica (realizzazione e assemblaggio struttura)
2) Deputy project leader, quality e test team manager per il progetto per la realizzazione dei correttori di alto ordine di **High-Luminosity LHC**
   - Progettazione ed implementazione industriale del processo per la verifica della qualità delle bobine superconduttrici attraverso test elettrici tipici (misura di impedenza, isolamento verso terra, scarica impulsiva) e test appositamente realizzati (accoppiamento elettromagnetico in AC per la verifica del numero spire)
   - Gestione delle non-conformità attraverso la rapida implementazione di tutte le misure necessarie a valutare il reale impatto del difetto sulle performance finali del magnete
   - Coordinamento delle campagne di test a caldo (temp. ambiente) e a freddo (4.3 K), analisi dei dati misurati e realizzazione dei test-report da inserire nel sistema qualità del CERN
   - Coordinamento delle attività di progettazione, realizzazione e messa a punto di un sistema di alimentazione completamente automatizzato a quattro quadranti ±15V,

±600A dal punto di vista hardware e software

- Ricostruzione delle origini del guasto accaduto durante il test a freddo del prototipo di quadrupolo (MQSXFP1) mediante simulazioni elettromagnetiche dedicate
- Implementazione di simulazioni elettromagnetiche per la verifica del sistema di protezione da quench e della sua ridondanza in caso di guasto
- Presentazione e discussione dei risultati raggiunti in riunioni di progetto (CERN HL-LHC WP3) e convegni internazionali

3) Responsabile locale per il progetto **ASTRACT** (Analysis of STRain Affected CharacTeristics of brittle SuperConducting cables), INFN gruppo V
   - Coordinamento delle attività di riqualificazione di un alimentatore a batteria super-stabilizzato 4V, 2500A per misure di corrente critica, dal punto di vista hardware e software
   - Verifica metrologica del sistema riqualificato mediante la misura di fili superconduttivi di riferimento con caratteristiche di trasporto note
   - Progettazione di un innovativo porta-campioni per la misura di corrente critica sotto deformazione meccanica imposta a freddo
   - Richiesta annuale dei fondi e loro gestione
4) Membro del gruppo di lavoro su **FalconD** (Future Accelerator post-LHC Cos-theta Optimised Nb3Sn Dipole) per lo sviluppo di un modello di magnete dipolare ad alto campo dal design robusto verso **FCC-hh**
   - Responsabile dell'approvvigionamento delle attrezzature necessarie alla realizzazione ed assemblaggio delle bobine superconduttrici in Nb3Sn (forno e sistema bladder&key). Supervisione tecnica della commessa nelle fasi di realizzazione, installazione e messa in opera
   - Coordinatore delle attività per l'implementazone della catena di alimentazione a 30 kA: controllo alimentatori, realizzazione busbars e progettazione e costruzione di un interruttore veloce (< 1 ms) ad IGBT
   - Co-relatore di una tesi di dottorato sulla protezione da quench: design del sistema per il modello corto FalconD (~1.5m) e sua estrapolazione al magnete lungo (~14m) mediante simulazioni elettrotermiche
5) Membro del progetto di outreach dell'INFN **What Next**, giovani che raccontano il futuro
   - Divulgazione delle attività di ricerca in ambito acceleratori verso studenti di facoltà che non trattano questo argomento attraverso la visita dei laboratori e la realizzazione di un cortometraggio
   - Organizzazione della visita e del laboratorio didattico sui magneti superconduttori presso il LASA, Milano

Settore Ricerca

Da ottobre 2015 a settembre 2018

Senior Fellow

CERN, Ginevra. *Supervisor: Dott. A. Verweij*

Membro del progetto **STEAM** (Simulation of Transient Effects in Accelerator Magnets) con i seguenti incarichi:

1) Ideazione dei modelli numerici di simulazione e programmazione software per la loro costruzione automatizzata
   - Sviluppo di modelli elettrotermici agli elementi finiti di magneti superconduttori in COMSOL
   - Sviluppo di modelli a parametri concentrati dei circuiti di alimentazione dei magneti
   - Programmazione di una innovativa piattaforma Java per la simulazione cooperativa tra più modelli (co-simulazione mediante waveform relaxation)
2) Applicazione dei modelli sviluppati all'interno del progetto **FCC** – Future Circular Collider – un collisore di adroni di 100 km, 100 TeV
   - Design del sistema di protezione da quench per le tre diverse opzioni di magneti dipolari a 16 T (configurazioni cosθ, block-coil, common-coil)
   - Studio dell'innovativo sistema di protezione Coupling Loss Induced Quench (CLIQ)
   - Co-simulazione dello stress meccanico sulle coil durante il quench
   - Design dei circuiti di alimentazione dei 4220 magneti dipolari e simulazione della loro protezione
3) Analisi tempestiva dei guasti nei circuiti di **LHC** tramite modelli numerici sviluppati ad-hoc, al fine di limitarne il tempo di fermo
4) Supervisione di technical students

Settore Ricerca

Da marzo 2014 a settembre 2015

Assegnista di ricerca

Politecnico di Milano. *Supervisor: Prof. R. Ottoboni*

In collaborazione con ABB Corporate Research Center (Ladenburg) e ABB SACE (Bergamo)

Sviluppo di innovativi metodi di misura per correnti continue e alternate con applicazione al campo degli interruttori elettrici di potenza

- Ottimizzazione di array di sensori ad effetto hall per la minimizzazione del crosstalk nella misura di busbar vicine
- Ottimizzazione di trasformatori di corrente mediante modelli agli elementi finiti (ANSYS

Maxwell) ed analitici (serie di Volterra)

- Validazione dei modelli numerici tramite la realizzazione di setup sperimentali
- Presentazione e discussione delle attività con ABB a cadenza mensile

Settore Ricerca

AA. 2014 / 2015
AA. 2013 / 2014
AA. 2012 / 2013

Responsabile di laboratorio

Corso di misure elettriche e corso di elaborazione numerica dei segnali di misura

Politecnico di Milano. *Supervisors: Prof. R. Ottoboni, Prof. S. Salicone*

Didattica sulla realizzazione di setup di laboratorio e software di analisi su:

- Tecniche di base per le misure elettriche
- Conversione analogico digitale, dispositivi di misura virtuali LabVIEW e Digital Signal Processing

Settore Didattica

AA. 2013 / 2014
AA. 2012 / 2013

Docente per il tutorato sul programma Matlab

V Facoltà di Ingegneria, Politecnico di Milano. *Supervisor: Prof. M. Frontini*

Didattica sulle tecniche di programmazione in MATLAB per l'ingegneria

Settore Didattica

ISTRUZIONE E FORMAZIONE

Da gennaio 2011 a marzo 2014

Dottore di ricerca in Ingegneria Elettrica

QEQ 8

Politecnico di Milano

- Attività di ricerca per la caratterizzazione metrologica di sistemi di misura complessi: definizione di un nuovo approccio per la valutazione dell'incertezza di misura basato sulle teorie matematiche dell'Evidenza e della Possibilità
- Applicazione alla misura della potenza attiva, caratterizzazione metrologica di un divisore di tensione resistivo, misura della temperatura in presenza di informazione a priori

Da settembre 2008 a ottobre 2010

Laurea Specialistica in Ingegneria Elettrica (110/110 *cum Laude*)

QEQ 7

Politecnico di Milano

- Misure elettriche su sistemi elettrici di potenza: analisi della Power Quality mediante Logica Fuzzy e Sistemi di Inferenza Fuzzy e relativa caratterizzazione metrologica
- Elaborazione numerica dei segnali di misura, filtri numerici, azionamenti elettrici, compatibilità elettromagnetica, macchine elettriche speciali

Alta Scuola Politecnica (www.asp-poli.it)

Da settembre

Politecnico di Torino, Politecnico di Milano

2008 a settembre 2009

- Scuola internazionale in lingua inglese per giovani talenti
- Conferenze multidisciplinari su temi quali innovazione, sostenibilità ambientale, decision making

Da settembre 2005 a luglio 2008

Laurea in Ingegneria Elettrica (110/110 *cum Laude*)

QEQ 6

Politecnico di Milano

- Analisi matematica, fisica, elettrotecnica, misure elettriche, macchine elettriche, lingua straniera (inglese)

COMPETENZE PERSONALI

Lingua madre: Italiano

Altre lingue

	COMPRENSIONE		PARLATO		PRODUZIONE SCRITTA
	Ascolto	Lettura	Interazione	Produzione orale	
Inglese	C1	C1	C1	C1	C1
Francese	A2	A2	A2	A2	A2

Inglese: certificazione TOEFL con votazione 96/120.
Francese: certificazione Supercomm Suisse con votazione 45.5/50

Livelli: A1/2 Livello base - B1/2 Livello intermedio - C1/2 Livello avanzato
Quadro Comune Europeo di Riferimento delle Lingue

Competenze comunicative

- 18 interventi come relatore a conferenze internazionali
- Redazione di articoli scientifici per pubblicazione su riviste internazionali
- Competenze didattiche

Competenze organizzative e gestionali

- Coordinamanto e mediazione nello sviluppo di attività di ricerca scientifica
- Esperienza nella metodologia SCRUM: un framework agile per la gestione del lavoro di squadra
- Capacità di gestione e organizzazione del gruppo di lavoro
- Esperienza nella supervisione di studenti di laurea e dottorato

Competenze professionali

- **Misura**: esperienza trasversale nel campo delle misure elettriche. Design e implementazione di setup di misura, tra cui sistemi virtuali mediante Digital Signal Processing, e analisi critica dei dati. Profonda conoscenza delle teorie matematiche dedicate alla propagazione dell'incertezza di misura

- **Test di magneti** superconduttori: approfondita conoscenza di tutte le fasi del test, dalla ricezione del magnete alla redazione del rapporto, e dei dispositivi ad esso connessi.
- **Alimentatori** di potenza**:** coordinamento delle attività di sviluppo hardware e software di diversi sistemi di alimentazione per magneti nell'intervallo 600 A – 30 kA
- **Simulazione**: capacità di sviluppo di modelli analitici, a parametri concentrati, e agli elementi finiti nei domini elettrico, magnetotermico e meccanico. Conoscenza approfondita delle simulazioni di quench per i magneti superconduttori
- **Sviluppo sofware**: esperienza nella programmazione in MATLAB ed in Java di un progetto complesso per la simulazione cooperativa tra ambienti di simulazione differenti (CERN - STEAM)
- **Qualità** di prodotto: design di metodi per la misura della qualità, delle relative procedure e verifica periodica dei risultati
- **Gestione** di fondi di ricerca, ordini, e partecipazione a call di finanziamento nazionali e internazionali

Competenze informatiche

- Utente avanzato delle suite da ufficio: MS Office, LaTeX, Adobe Acrobat
- Conoscenza approfondita dei programmi di simulazione: COMSOL, Spice, Simulink, ANSYS Maxwell, ROXIE
- Padronanza degli ambienti di programmazione: MATLAB, LabVIEW, Java, C

Patente di guida

- Patenti A e B
- Patente nautica

ULTERIORI INFORMAZIONI

Pubblicazioni scientifiche

- 50 pubblicazioni su riviste internazionali, 2 libri / contributi a libro, 40 pubblicazioni su atti di convegni internazionali, 2 pubblicazioni nazionali
- H-index settembre 2025: 26 (SCHOLAR), 21 (SCOPUS)
- Revisore per le riviste IEEE Transactions on Instrumentation and Measurement e Transactions on Applied Superconductivity

Riconoscimenti e premi

- IEEE J. Barry Oakes Advancement Award, **IEEE** instrumentation and measurement society, 2014 a riconoscimento del contributo di giovani talenti nel campo delle misure elettriche
- Premio per il miglior studente di Dottorato, DEIB, **Politecnico di Milano**, 2014
- Premio per la Miglior Tesi di Laurea, **Comitato Elettrotecnico Italiano**, 2010

- Borsa di studio per i 12 migliori studenti del Politecnico di Milano, **Fondazione Legnanese**, 2009
- Miglior elaborato sul tema del viaggio, **MIUR**, esame di stato 2005

Affiliazioni

- **CERN** Cooperation Associate (COAS) dal 2019
- Membro dal 2011 al 2015 di **IEEE** e **IMS** (IEEE Instrumentation and Measurement Society)
- Membro dal 2011 al 2015 di **GMEE** (Gruppo Misure Elettriche ed Elettroniche)

Curriculum Vitae

Informazioni personali

Nome	Stefania Farinon
indirizzo	Via Dodecaneso 33 – 16146 ITALY
telefono	
e-mail	stefania.farinon@ge.infn.it
nazionalità	i
Data di nascita	

Formazione e occupazione

Dal 1/1/2021 ad oggi	Dirigente Tecnologo presso l'INFN
Dal 2007 al 2020	Primo Tecnologo presso l'INFN
Dal 2001 to 2006	Tecnologo presso l'INFN
Dal 1996 to 2001	Posizione a tempo determinato nell'INFN per una collaborazione tecnica nell'ambito dell'esperimento CMS, con particolare riguardo allo studio dei disturbi e del comportamento meccanico della bobina superconduttrice.
dal 1994 al 1996	Borsa di Studio INFN per la progettazione magnetica meccanica e termica del solenoide superconduttore CMS
1994	Laurea in Fisica discutendo la tesi "Studio teorico e sperimentale della risposta spettrale di superconduttori esposti a campi magnetici variabili"

Progetti di ricerca e collaborazioni scientifiche

dal 2022 ad oggi	Posizione: responsabile delle attività della Sezione di Genova dell'INFN dell'esperimento SIG (Superconducting Ion Gantry) Progettazione meccanica e supervisione dell'assemblaggio di un dimostratore presso i laboratori LASA dell'INFN (Mi).
dal 2019 ad oggi	Posizione: responsabile nazionale dell'esperimento INFN FalconD Progettazione e supervisione della costruzione di un dimostratore di dipolo ad alto campo in Nb_3Sn
dal 2014 ad oggi	Posizione: responsabile nazionale dell'esperimento INFN D2 Progettazione e supervisione della costruzione di un modello, di un prototipo e della serie di sei magneti del dipolo superconduttore D2 per l'upgrade ad alta luminosità del Large Hadron Collider al CERN
2015-2019	Posizione: responsabile delle attività INFN del WP5 Progettazione di un dipolo superconduttore da 16 T in Nb_3Sn per il Future Circular Collider al CERN nell'ambito dell'esperimento europeo EuroCircol.
2014-2016	Posizione: responsabile della progettazione Progettazione e costruzione di un calorimentro per la misura ad altissima accuratezza del calore generato dalla sorgente di antineutrini 100kCi ^{144}Ce–^{144}Pr per l'esperimento INFN SOX
2014-2015	Posizione: progettista Progettazione e costruzione del primo prototipo sui 27 moduli del solenoide di trasporto per l'esperimento Mu2e al Fermilab.
2013-2021	Posizione: collaborazione Partecipazione agli studi sul rumore elettromagnetico e newtonianiano per l'upgrade del rivelatore di onde gravitazionali Virgo

2013-2015	Posizione: progettista Progettazione di un magnete toroidale superconduttore per la schermatura di astroparticelle in missioni interplanetarie con equipaggio per l'esperimento europeo SR2S (Space Radiation Superconductive Shield).
2011-2013	Posizione: collaborazione alla progettazione e ai test Progettazione, costruzione e test di un modello di quadrupolo superconduttore per la regione di interazione della SuperB factory.
2005-2010	Posizione: responsabile della progettazione meccanica Progettazione e costruzione di un dipolo superconduttore a rampa veloce per il sincrotrone FAIR SIS300.
1995-2005	Posizione: progettista e responsabile della Qualità Progettazione e costruzione del solenoide superconduttore CMS al CERN LHC.
2005-2007	Posizione: responsabile delle attività della Sezione di Genova dell'INFN Sviluppo di un conduttore di Nb_3Sn ad alte prestazioni per il progetto europeo NED.
2003-2004	Posizione: responsabile delle attività della Sezione di Genova dell'INFN Progettazione del solenoide superconduttore per il ciclotrone SCENT (Superconducting Cyclotron for Exotic Nuclei and Therapy) presso il Laboratorio LNS dell'INFN.
2001-2003	Posizione: progettista Progettazione di un gantry a ioni pesanti per la radioterapia oncologica al centro CNAO.
1994-1996	Posizione: progettista Progettazione e costruzione del solenoide superconduttore BABAR per l'impianto SLAC di Stanford.

Incarichi editoriali

dal 2005 ad oggi	Editore della rivista "IEEE Transaction on Applied Superconductivity" per i numeri contenenti gli atti della Applied Superconductivity Conference e della Magnet Technology Conference.
dal 2019 ad oggi	Editore dei numeri regolari della rivista "IEEE Transaction on Applied Superconductivity"

Incarichi speciali:

2005	Chief Editor della rivista "IEEE Transaction on Applied Superconductivity" per i numeri contenenti i proceeding della 19th Magnet Technology Conference.
2007	Chief Editor della rivista "IEEE Transaction on Applied Superconductivity" per i numeri contenenti i proceeding della 20th Magnet Technology Conference.
2009	Lead Editor della rivista "IEEE Transaction on Applied Superconductivity" per i numeri contenenti i proceeding della 21st Magnet Technology Conference
2010	Chief Editor della rivista "IEEE Transaction on Applied Superconductivity" per i numeri contenenti i proceeding della 2010 Applied Superconductivity Conference.
2011	Chief Editor della rivista "IEEE Transaction on Applied Superconductivity" per i numeri contenenti i proceeding della 22nd Magnet Technology Conference.
2012	Lead Editor della rivista "IEEE Transaction on Applied Superconductivity" per i numeri contenenti i proceeding della 2012 Applied Superconductivity Conference.
2013	Chief Editor della rivista "IEEE Transaction on Applied Superconductivity" per i numeri contenenti i proceeding della 23rd Magnet Technology Conference.
2013	Chief Editor di"Journal of Physics: Conference Series" per la 2013 European Conference on Applied Superconductivity

Comitati scientifici

2013	Membro del Comitato del Programma Scientifico della 23rd Magnet Technology Conference.
2013	Membro del Comitato del Programma Scientifico della 2013 European Conference on Applied Superconductivity.
2014-2018	Membro eletto dell'Applied Superconductivity Conference Board Committee.

2014	Membro del Comitato del Programma Scientifico della 2014 Applied Superconductivity Conference
2016	Membro del Comitato del Programma Scientifico della 2016 Applied Superconductivity Conference
2018	Membro del Comitato del Programma Scientifico della 2018 Applied Superconductivity Conference
2019	Membro del Comitato del Programma Scientifico della 2019 European Conference on Applied Superconductivity.
2023	Membro del Comitato del Programma Scientifico della 2023 European Conference on Applied Superconductivity.

Attività e incarichi accademici

dall'A.A. 2021-2022 ad oggi	Docente per la Laurea Magistrale in Fisica: "Fisica e tecnologia dei magneti superconduttori" (24 ore)
dall'A.A. 2018-2019 ad oggi	Docente nel corso della Scuola di Dottorato in Fisica: "Progettazione di magneti superconduttori" (20 ore)
da Febbraio 2021 ad oggi	Membro del Collegio di Dottorato in Fisica

Relatrice delle seguenti tesi di laurea Magistrale:

A.A. 2000-2001 Luca Reina, Ingegneria meccanica
Tesi dal titolo: "Ottimizzazione dei parametri caratteristici di un magnete superconduttore tramite analisi FEM pilotate da algoritmi genetici"
A.A. 2001-2002 Thomas Coltella, Ingegneria meccanica
Tesi dal titolo: "Progetto meccanico delle strutture di contenimento di un magnete superconduttore per adroterapia oncologica"
A.A. 2018-2019 Filippo Levi, Fisica
Tesi dal titolo: "Studio degli effetti meccanici, magnetici e termici sulla qualità di campo di dipoli superconduttori per acceleratori adronici e del dipolo D2 per l'upgrade High-Luminosity di LHC"
A.A. 2019-2020 Ludovico Musenich, Ingegneria meccanica
Tesi dal titolo: "Modellazione FEM per la verifica strutturale del telaio portante del rivelatore di materia oscura DarkSide-20k"
A.A. 2020-2021 Gianluca Vernassa, Ingegneria meccanica
Tesi dal titolo: "Thermomechanical and electromagnetic analyses on a superconducting demonstrator magnet for Hadron Therapy"
A.A. 2020-2021 Francesco Lonardo, Ingegneria nucleare
Tesi dal titolo: "The D2 magnets for the LHC Luminosity upgrade: from prototype to series construction"
A.A. 2021-2022 Nicola Sala, Ingegneria meccanica
Tesi dal titolo: "Design and Optimization of the 2D cross-section for high field Nb3Sn magnets towards future accelerators"
A.A. 2022-2023 Emma Bianchi, Ingegneria meccanica
Tesi dal titolo: "Progettazione della struttura meccanica del dipolo superconduttore SIG per un gantry a ioni"
A.A. 2023-2024 Elena Cereghino
Tesi dal titolo: "Analisi sperimentale e numerica di tecnologie innovative di magneti superconduttori per le future applicazioni mediche e di fisica delle alte energie"

Supervisore delle seguenti tesi di Dottorato in Fisica:

XXXV Ciclo (2019) Filippo Levi
Tesi dal titolo: "Optimization and control of the field quality and the mechanical structure of superconducting dipoles for future accelerators"

	XXXVI Ciclo (2020) Sergio Burioli Tesi dal titolo: “Mechanical effects on the performances of the superconducting cables and magnets for future accelerators” XXXVIII Ciclo (2022) Daniel Novelli Tesi dal titolo: “Development of superconducting magnets for the future FCC-hh and Muon Collider accelerators” XXXIX Ciclo (2023) Alessio Dellacasagrande Tesi dal titolo: “Conceptual electromagnetic design of the detector magnet for the ALICE 3 upgrade”
Capacità e competenze personali	
Lingue	Buon inglese, parlato e scritto, conoscenza del francese
Capacità e competenze tecniche	conoscenza approfondita della progettazione con strumenti ad elementi finiti

GENOVA, 20 maggio 2025

Stefania Farinon

PUBBLICAZIONI SU RIVISTE INTERNAZIONALI in ordine cronologico decrescente

2024

1. **GWTC-2.1: Deep extended catalog of compact binary coalescences observed by LIGO and Virgo during the first half of the third observing run**
   LIGO Sci Collaboration ; LIGO Sci Collaboration ; Virgo Collaboration
   PHYSICAL REVIEW D Volume: 109 Issue: 2 Article Number: 022001 DOI: 10.1103/PhysRevD.109.022001 Published: JAN 2024.
2. **Towards a muon collider**
   Accettura, C; Adams, D; (...); Zurita, J
   EUROPEAN PHYSICAL JOURNAL C Volume: 84 Issue 1 Article Number: 36 DOI: 10.1140/epjc/s10052-023-12257-5 Published: JAN 2024.
3. **IRIS-A New Distributed Research Infrastructure on Applied Superconductivity**
   Rossi, L; Arpaia, P; (...); Vannozzi, A
   IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume: 34 Issue 3 Article Number: 9500309 DOI: 10.1109/TASC.2023.3341984 Published: MAY 2024.
4. **Status on the Development of the Nb3Sn 12 T Falcon Dipole for the FCC-hh**
   Valente, RU; Ballarino, A; (...); Vernassa, G
   IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume: 34 Issue 3 Article Number: 4900405 DOI: 10.1109/TASC.2023.3338166 Published: MAY 2024.
5. **Magnets for a Muon Collider-Needs and Plans**
   Bottura, L; Accettura, C; (...); Zlobin, A
   IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume: 34 Issue 5 Article Number: 4005708 DOI: 10.1109/TASC.2024.3382069 Published: AUG 2024.
6. **MBRD Prototype Cold Tests: Mechanical Stability and Performances**
   Bersani, A; Bracco, M; (...); Willering, G
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IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume 15 Issue 2 Pages 2867-2870 Part 3 Published JUN 2005 DOI 10.1109/TASC.2005.848250

2004

290. **Status of the construction of the CMS magnet**
By Herve, A; Blau, B; Bredy, PH; et al.
IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume 14 Issue 2 Special Issue SI Pages 542-547 Published JUN 2004 DOI 10.1109/TASC.2004.829715

291. **The construction of the modules composing the CMS superconducting coil**
By Fabbricatore, P; Campi, D; D'Urzo, C; et al.
IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume 14 Issue 2 Special Issue SI Pages 552-555 Published JUN 2004 DOI 10.1109/TASC.2004.829717

292. **The winding method and model of a superconducting bending dipole for hadrontherapy**
By Farinon, S; Cereseto, R; Cuneo, S; et al.
IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume 14 Issue 2 Special Issue SI Pages 585-588 Published JUN 2004 DOI 10.1109/TASC.2004.829980

293. **The influence of filament arrangement on current distribution and AC loss in Bi-2223/Ag tapes**
By Gomory, F; Seiler, E; Souc, J; et al.
SUPERCONDUCTOR SCIENCE & TECHNOLOGY Volume 17 Issue 5 Special Issue SI Pages S150-S154 Article Number PII S0953-2048(04)71825-4 Published MAY 2004 DOI 10.1088/0953-2048/17/5/012

294. **A superconducting cyclotron as driver for radioactive beam facilities**
By Calabretta, L; Maggiore, M; Re, M; et al.
NUCLEAR PHYSICS A Volume 734 Pages 378-381 Published APR 5 2004 DOI 10.1016/j.nuclphysa.2004.01.072

295. **Critical current and n-value modifications from superconducting strands to Rutherford cables**
By Greco, M; Fabbricatore, P; Farinon, S; et al.
PHYSICA C-SUPERCONDUCTIVITY AND ITS APPLICATIONS Volume 401 Issue 1-4 Pages 124-128 Published JAN 15 2004 DOI 10.1016/j.physc.2003.09.022

296. Determination of the V-I characteristic of NbTi wires in a wide resistivity range

By Musenich, R; Fabbricatore, P; Farinon, S; et al.

PHYSICA C-SUPERCONDUCTIVITY AND ITS APPLICATIONS Volume 401 Issue 1-4 Pages 260-264 Published JAN 15 2004 DOI 10.1016/j.physc.2003.09.050

2003

297. Generation of higher harmonics in voltage on superconducting wire carrying cosine-like AC current

By Gomory, F; Tebano, R; Souc, J; et al.

IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume 13 Issue 2 Pages 3622-3625 Part 3 Published JUN 2003 DOI 10.1109/TASC.2003.812413

2002

298. Magnetic hysteresis loss in Bi-2223/Ag tapes with different filament arrangement

By Gomory, F; Souc, J; Fabbricatore, P; et al.

PHYSICA C-SUPERCONDUCTIVITY AND ITS APPLICATIONS Volume 371 Issue 3 Pages 229-236 Article Number PII S0921-4534(01)01089-9 Published JUL 1 2002 DOI 10.1016/S0921-4534(01)01089-9

299. Measurement of B -> K-* gamma branching fractions and charge asymmetries

By BABAR Collaboration

PHYSICAL REVIEW LETTERS Volume 88 Issue 10 Article Number 101805 Published MAR 11 2002 DOI 10.1103/PhysRevLett.88.101805

300. The winding line for the CMS reinforced conductor

By Fabbricatore, P; Campi, D; D'Urzo, C; et al.

IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume 12 Issue 1 Pages 358-361 Article Number PII S1051-8223(02)03563-7 Published MAR 2002 DOI 10.1109/TASC.2002.1018419

301. CMS coil design and assembly

By Kircher, F; Bredy, P; Campi, D; et al.

IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume 12 Issue 1 Pages 395-398 Article Number PII S1051-8223(02)03570-4 Published MAR 2002 DOI 10.1109/TASC.2002.1018427

302. Design, construction, and quality tests of the large Al-alloy mandrels for the CMS coil

By Sgobba, S; D'Urzo, C; Fabbricatore, P; et al.

IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume 12 Issue 1 Pages 428-431 Article Number PII S1051-8223(02)03578-9 Published MAR 2002 DOI 10.1109/TASC.2002.1018436

303. Electrical joints in the CMS superconducting magnet

By Farinon, S; Chesny, P; Cure, B; et al.

IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume 12 Issue 1 Pages 462-464 Article Number PII S1051-8223(02)03584-4 Published MAR 2002 DOI 10.1109/TASC.2002.1018443

304. A superconducting magnet for a beam delivery system for carbon ion cancer therapy

By Priano, C; Fabbricatore, P; Farinon, S; et al.

IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume 12 Issue 1 Pages 988-992 Article Number PII S1051-8223(02)03872-1 Published MAR 2002 DOI 10.1109/TASC.2002.1018566

305. A voluminized fiber-glass insulation for large superconducting magnets

By Musenich, R; D'Urzo, C; Fabbricatore, P; et al.

IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume 12 Issue 1 Pages 1242-1243 Article Number PII S1051-8223(02)04169-6 Published MAR 2002 DOI 10.1109/TASC.2002.1018626

306. The BABAR detector

By BABAR Collaboration

NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS

DETECTORS AND ASSOCIATED EQUIPMENT Volume 479 Issue 1 Pages 1-116 Article Number PII S0168-9002(01)02012-5 Published FEB 21 2002 DOI 10.1016/S0168-9002(01)02012-5

307. Measurement of branching fractions for exclusive B decays to charmonium final states

By BABAR Collaboration

PHYSICAL REVIEW D Volume 65 Issue 3 Article Number 032001 Published FEB 1 2002 DOI 10.1103/PhysRevD.65.032001

2001

308. Measurement of the B -> J/psi K*(892) decay amplitudes

By BABAR Collaboration

PHYSICAL REVIEW LETTERS Volume 87 Issue 24 Article Number 241801 Published DEC 10 2001 DOI 10.1103/PhysRevLett.87.241801

309. Search for the decay B-0 ->gamma gamma

By BABAR Collaboration

PHYSICAL REVIEW LETTERS Volume 87 Issue 24 Article Number 241803 Published DEC 10 2001 DOI 10.1103/PhysRevLett.87.241803

310. Measurements of the branching fractions of exclusive charmless B meson decays with eta ' or omega mesons

By BABAR Collaboration

PHYSICAL REVIEW LETTERS Volume 87 Issue 22 Pages art. no.-221802 Published NOV 26 2001 DOI 10.1103/PhysRevLett.87.221802

311. Measurement of the B-0 and B+ meson lifetimes with fully reconstructed hadronic final states

By BABAR Collaboration

PHYSICAL REVIEW LETTERS Volume 87 Issue 20 Article Number 201803 Published NOV 12 2001 DOI 10.1103/PhysRevLett.87.201803

312. Measurement of J/psi production in continuum e(+)e(-) annihilations near root s=10.6 GeV

By BABAR Collaboration

PHYSICAL REVIEW LETTERS Volume 87 Issue 16 Article Number 162002 Published OCT 15 2001 DOI 10.1103/PhysRevLett.87.162002

313. Measurement of branching fractions and search for CP-violating charge asymmetries in charmless two-body B decays into pions and kaons

By BABAR Collaboration

PHYSICAL REVIEW LETTERS Volume 87 Issue 15 Article Number 151802 Published OCT 8 2001 DOI 10.1103/PhysRevLett.87.151802

314. Measurement of the decays B ->phi K and B ->phi K – 151801

By BABAR Collaboration

PHYSICAL REVIEW LETTERS Volume 87 Issue 15 Article Number 151801 Published OCT 8 2001 DOI 10.1103/PhysRevLett.87.151801

315. Observation of CP violation in the B-0 meson system

By BABAR Collaboration

PHYSICAL REVIEW LETTERS Volume 87 Issue 9 Article Number 091801 Published AUG 27 2001 DOI 10.1103/PhysRevLett.87.091801

316. Pre-industrialization activities related to CMS coil winding

By Fabbricatore, P; Farinon, S; Musenich, R; et al.

IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume 11 Issue 1 Pages 1717-1720 Part 2 Published MAR 2001 DOI 10.1109/77.920114

317. Shielding and losses in multifilamentary tapes exposed to perpendicular AC magnetic fields

By Farinon, S; Fabbricatore, P; Gomory, F; et al.

IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume 11 Issue 1 Pages 2776-2779 Part 3 Published MAR 2001 DOI 10.1109/77.919639

2000

318. Ac losses in multifilamentary high-T-c tapes due to a perpendicular ac magnetic field
By Fabbricatore, P; Farinon, S; Gomory, F; et al.
SUPERCONDUCTOR SCIENCE & TECHNOLOGY Volume 13 Issue 9 Pages 1327-1337 Published SEP 2000 DOI 10.1088/0953-2048/13/9/308

319. Final design of the CMS solenoid cold mass
By Kircher, F; Bredy, P; Calvo, A; et al.
IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume 10 Issue 1 Pages 407-410 Published MAR 2000 DOI 10.1109/77.828259

320. Finite element stress analysis of the CMS magnet coil
By Desirelli, A; Fabbricatore, P; Farinon, S; et al.
IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume 10 Issue 1 Pages 419-423 Published MAR 2000 DOI 10.1109/77.828262

321. Experimental study of CMS conductor stability
By Fabbricatore, P; Farinon, S; Juster, FP; et al.
IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume 10 Issue 1 Pages 424-427 Published MAR 2000 DOI 10.1109/77.828263

322. 3D magnetic analysis of the CMS magnet
By Klioukhine, VI; Campi, D; Cure, B; et al.
IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume 10 Issue 1 Pages 428-431 Published MAR 2000 DOI 10.1109/77.828264

323. Magnetic flux shielding in superconducting strip arrays
By Fabbricatore, P; Farinon, S; Innocenti, S; et al.
PHYSICAL REVIEW B Volume 61 Issue 9 Pages 6413-6421 Published MAR 1 2000 DOI 10.1103/PhysRevB.61.6413

324. Evolution of the ohmic voltage drop in connections of superconductors under time-varying current
By Musenich, R; Farinon, S; Priano, C; et al.
CRYOGENICS Volume 40 Issue 1 Pages 45-52 Published JAN 2000 DOI 10.1016/S0011-2275(00)00002-3

1999

325. The BaBar superconducting coil design, construction and test
By Bell, RA; Berndt, M; Burgess, W; et al.
NUCLEAR PHYSICS B-PROCEEDINGS SUPPLEMENTS Volume 78 Pages 559-564 Published AUG 1999 DOI 10.1016/S0920-5632(99)00603-9

326. Developments of electrical joints for aluminum-stabilized superconducting cables
By Fabbricatore, P; Farinon, S; Musenich, R; et al.
IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume 9 Issue 2 Pages 197-200 Part 1 Published JUN 1999

327. Design and testing of the 1.5 T superconducting solenoid for the BaBar Detector at PEP-II in SLAC
By O'Connor, TG; Shen, S; Fabbricatore, P; et al.
IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY Volume 9 Issue 2 Pages 847-851 Part 1 Published JUN 1999 DOI 10.1109/77.783429

1996

328. The superconducting magnet for the BABAR detector of the PEP-II B factory at SLAC
By Fabbricatore, P; Farinon, S; Parodi, R; et al.

IEEE TRANSACTIONS ON MAGNETICS Volume 32 Issue 4 Pages 2210-2213 Part 1 Published JUL 1996 DOI 10.1109/20.508606

1994

329. Fluxon dynamics and higher harmonics of ac susceptibility in HTSC

By Fabbricatore, P; Farinon, S; Gemme, G; et al.

NUOVO CIMENTO DELLA SOCIETA ITALIANA DI FISICA D-CONDENSED MATTER ATOMIC MOLECULAR AND CHEMICAL PHYSICS FLUIDS PLASMAS BIOPHYSICS Volume 16 Issue 10-11 Pages 1917-1924 Published OCT-NOV 1994 DOI 10.1007/BF02462194

330. Effects of fluxon dynamics on higher harmonics of ac susceptibility in type-II superconductors

By Fabbricatore, P; Farinon, S; Gemme, G; et al.

PHYSICAL REVIEW B Volume 50 Issue 5 Pages 3189-3199 Published AUG 1 1994 DOI 10.1103/PhysRevB.50.3189

1993

331. AC magnetic measurements on superconductors using 2-channel dynamic analyzer

By Fabbricatore, P; Farinon, S; Gemme, G; et al.

CRYOGENICS Volume 33 Issue 12 Pages 1170-1173 Published DEC 1993 DOI 10.1016/0011-2275(93)90013-E

Lucio Rossi - Very Short CV – May 2025

Lucio Rossi is full professor of Experimental Physics at University of Milano. He began his career at University of Milan, working on large scale superconductivity for particle accelerators and detectors. He contributed to the Italian Superconducting Cyclotron, the thin solenoid of the ZEUS detector (HERA, Desy), the development of Nb_3Sn superconductor and led the LHC dipole first prototypes and the ATLAS BT superconducting cable and coils construction till 2001. In 2021 he proposed and led the construction of IRIS, a distributed Research Infrastructure in Italy, to support superconductivity R&D for next generation colliders and societal applications.

He moved to CERN, from 2001 to 2020, where he led the LHC superconductors and main magnets construction and eventually all LHC magnets operation and consolidation till 2011. In 2010 he proposed the High Luminosity LHC design study that, approved for construction in 2016, he led till 2020, when he retired from CERN and returned to the University of Milano and INFN. Main honors: the *IEEE- Council of Superconductivity Award* in 2007; IEEE fellowship in 2013; the *European Physical Society Rolf Wideröe Prize* in 2020; the *Fermi Prize, by the Italian Society of Physiscs (SIF)*, in 2023.

Milano, 19/6/2025

CURRICULUM VITAE
Dr. Marco Statera, PhD

Primo Tecnologo at Istituto Nazionale di Fisica Nucleare
Sezione di Milano - LASA

Work Experience:

Principal Investigator for the proposal FISA-2024-00269, in negotiation for funding.

Design, implementation, and testing of prototypes and series of high-order corrector magnets for the HL-LHC. Design of superconducting magnets for medical applications and for high and very high field particle accelerators based on low and high temperature superconducting technologies, including the study of non-standard configurations.

Study of the use of high temperature superconducting technologies to improve the sustainability of research infrastructures, such as new laboratories or particle accelerators, and civil infrastructures such as hadron therapy (medical) treatment facilities and energy transport.

Member of CB HL-LHC, SC INFN-CERN for HL-LHC, Technical Coordination meeting 2019-2023, SC of the PNRR IRIS project. Co-chair of the 14th HL-Collaboration Meeting, Genoa, Italy.

From 2/10/2017 to present: Technologist III level (II level from 1/1/2020) - permanent contract, technical manager for the electrical and electromechanical design, construction, and testing of multipolar corrector magnets (prototypes and series) for HiLumi-LHC at the LASA laboratory, INFN section of Milan. From 1/9/2016 to 30/12/2017: responsible for vacuum and cryogenics service, Department of Physics and Earth Sciences - University of Ferrara. Permanent contract. From 1/9/2015 to 31/8/2016: Technologist III level art.36 - fixed-term contract titled 'electromagnetic and mechanical design of prototypes of multipolar corrector magnets of HL-LHC and definition of assembly and cryogenic testing procedures' - electrical and electromechanical design, construction, and testing of multipolar corrector magnets for HiLumi-LHC at the LASA laboratory, INFN section of Milan. From 1/12/2009 to 31/8/2015: responsible for vacuum and cryogenics service, Department of Physics and Earth Sciences - University of Ferrara. Permanent contract - on leave until 31/8/2016. From 01/01/2008 to

30/11/2008: research fellow, Department of Physics - University of Ferrara - disciplinary sector FIS/01 - titled 'Design and development of the interaction point for experiments with polarized antiprotons'. From 02/05/2006 to 31/12/2007: research fellow, INFN section of Ferrara - National Institute of Nuclear Physics - Via Enrico Fermi, 40 - Frascati (Rome) - research theme 'Magnetic system for a transversely polarized internal gas target'. From 11/06/2003 to 01/05/2006: scholarship recipient (PhD) at the University of Ferrara - Department of Physics - National Institute of Nuclear Physics - Via Enrico Fermi, 40 - Frascati (Rome).

Publications

The author has published 195 scientific papers, SCOPUS code 8721813900, ORCID 0000-0003-3529-913X, with an H-index of 41 (see Appendix 1 'Publication List') and the following volumes:

The High Luminosity Large Hadron Collider, The New Machine for Illuminating the Mysteries of Universe. World Scientific, 2nd edition, ISBN 978-981-12-7894-5 (hardcover) https://doi.org/10.1142/13487. Chapter 'Superconducting Magnet Technology for the IR Upgrade' (E Todesco, G Ambrosio, P Ferracin, G L Sabbi, T Nakamoto, M Sugano, R Van Weelderen, P Fabbricatore, S Farinon, F Toral, M Sorbi, M Statera, Q Xu, J M Rifflet and H Felice)

High-Luminosity Large Hadron Collider (HL-LHC): Technical design report, CERN-2020-010

Future Circular Collider: Conceptual Design Report

- Future Circular Collider Study. Volume 1: Physics Opportunities. Conceptual Design Report, preprint edited by M. Mangano et al. CERN accelerator reports, CERN-ACC-2018-0056, Geneva, December 2018. Published in Eur. Phys. J. C.
- Future Circular Collider Study. Volume 2: The Lepton Collider (FCC-ee) Conceptual Design Report, preprint edited by M. Benedikt et al. CERN accelerator reports, CERN-ACC-2018-0057, Geneva, December 2018. Published in Eur. Phys. J. ST.
- Future Circular Collider Study. Volume 3: The Hadron Collider (FCC-hh) Conceptual Design Report, preprint edited by M. Benedikt et al. CERN accelerator reports, CERN-ACC-2018-0058, Geneva, December 2018. Published in Eur. Phys. J. ST.
- Future Circular Collider Study. Volume 4: The High Energy LHC (HE-LHC) Conceptual Design Report, preprint edited by F. Zimmermann et al. CERN accelerator reports, CERN-ACC-2018-0059, Geneva, December 2018. Published in Eur. Phys. J. ST.

Education:

23 February 2006 - PhD thesis in physics titled 'Superconducting magnetic systems for high energy polarized physics' - DESY 06-069. 19 July 2002 - Degree thesis in materials engineering titled 'Characterization and testing of the cryogenic apparatus for the conditioning of superconducting magnets and measurement, at low temperature, of magnetic fields, for the HERMES experiment' with a score of 109/110.

Main scientific and technological activities

PROPOSTA FISA-2024-00269 SURE: SUperconducting - Reliability & Efficiency

SURE project is a joint project by INFN and ASG Superconductors to improve the TRL of superconducting lines for power transmission, the project is leaded by INFN.

Superconducting cables can carry much higher currents with minimal energy loss compared to traditional cables, which could lead to more efficient and sustainable energy management for research institutes and society. The aim of the project is to proof the reliability of a DC superconducting link to interconnect two points in a real grid network, and to develop and test an AC superconducting cable that could be suitable for the equivalent grid connection. The core technology in the superconducting cablesis based on magnesium diboride (MgB2), a superconducting material that can be operated at a temperature of around 20K. The MgB2 wires constituting the cable will be produced by the host institution using a proprietary method, and they have been already used in several applications, proving the reliability and quality of the production. The host institution and the PI have been working on MgB2by EU projects and they are willing to improve the TRL of such cables from 3 to 7 in this project, qualifying the cable in an operational environment. In AC condition, the superconductors start to dissipate power, producing “AC losses”; these losses can be reduced optimizing the wires layout. For these reasons, the application of the superconducting cable in a real DC network is closer than its implementation in AC grid, since the latter needs some more studies and development phases. In this project, the DC superconducting link, will be designed, manufactured and tested in operative condition, together with its closed loop dedicated cryogenics. The full system will be installed at LNF, Frascati(Italy), to feed the new data center in construction, and it will be operating in parallel with the standard

redundancy systems. It will be tested for a long period to check its reliability and/or any other interaction with the grid. In parallel to the DC superconducting cable activities, fundamental studies on the AC behavior of superconducting materials will start, together with a wires and cable optimization, aiming to manufacture and test a laboratory level, the AC superconducting cable suitable for the implementation in an AC grid. Combining the modeling and test capability of all parties with the unique production experience of the host institution, we aim to improve the TRL of the AC MgB2 cables from 1 to 3,technology tested in laboratory.

PNRR IRIS

INFN responsible for Milano Pole (WP4) and responsible for the Green Superconducting Line (WP8), a superconducting power transmission line 1GW rated.

IRIS is a new infrastructure fostering innovative solutions for fundamental science and societal applications in the domain of Applied Superconductivity, with the mission to support basic research and application for improving the sustainability of large infrastructures for fundamental science, like accelerators for Particle Physics, with low consumption magnets and a green powerful transmission line. The last one, a superconducting line, will directly impact the green energy sector since it is a unique test bed for transport of large DC current at zero dissipation, a key element of an intelligent electrical network based on renewable energy.

In the framework of IRIS, the undersigned is responsible for the upgrade of the test stations at LASA, implementing variable temperature measurements in LASA cryostats and in field measurements (up to 8T) of conduction cooled supercoducting coils, magnets and devices.

HL-LHC Series of High-Order Correctors

Technical coordinator since 1/1/2018 of the addendum KE3085/TE/HL-LHC (collaboration agreement) within the framework collaboration agreement KN3083 between CERN and INFN for the design, construction, testing, and delivery to CERN of 54 high-order corrector magnets for the High Luminosity LHC (HL-LHC) project. The superferric superconducting magnets, divided into five families (quadrupole, sextupole, octupole, decapole, and dodecapole), will be installed in the new low-beta zones. The undersigned is responsible for the design and testing of the magnets, the design and operation of the dedicated cryogenic measurement station at the LASA laboratory, and quality, from drafting specifications to their application.

BISCOTTO, magnesium diboride CCT magnet

The undersigned is the local coordinator (INFN MI) of the BISCOTTO project (GRV INFN), which aims to develop CCT superconducting magnet technology in Italy based on magnesium doboride conductor. Specifically, the activity of the Milan section (LASA) involves evaluating the construction of this type of superconducting magnets in the industry, both as prototypes and as series production. The undersigned is responsible for the BISCOTTO fund for the year 2019. A CCT winding with magnesium diboride wire (wind&react) is in construction following the BISCOTTO activities.

High-Field Dipoles EuroCircol – FCC

The undersigned participated in the conceptual design (electromagnetic and mechanical) of Nb3Sn superconducting dipoles for the EuroCirCol and Future Circular Collider (FCC) projects. Since 2019, they have been preparing an assembly area for an Nb3Sn dipole magnet (model) and preparing the assembly at LASA using the Bladder & Key technique.

Cryogenics Laboratory LASA – INFN Milan

Co-coordination of the review, update, and evaluation of a possible relocation of the cryogenic system of the LASA laboratory to the former EXPO area. (Milan – LASA lab, 2018 to present) Evaluation, in the perspective of a transfer to MIND with UNIMI, of the validity of relocating the current cryogenic system or its replacement. Co-technical coordinator of the design for updating the LASA cryogenic system to increase capacity, efficiency, and implement remote operation: new hot helium treatment system and new liquefier for helium.

INFN_e Polfusion

Responsible for magnetic components and collaboration on the cryogenic part for the INFN Polfusion project, INFN_e Special Projects. The project aims to study the feasibility of a reaction with polarized fuel (spin-oriented deuterium) to improve reaction efficiency and mitigate radiation damage to reactor materials through precise intrinsic directionality in spin-oriented reactions

IEC New Proposal

Responsible for presenting the proposal for the standardization of mechanical measurements at room temperature on MgB2 superconducting wires within the superconductivity committee (CT90) of the International Electromechanical Commission (IEC) (2014-present).

CLAS12

Design and implementation of feasibility tests for the use of a bulk superconducting magnet with a dual function of adaptive magnetic shielding (self-tuning) and maintaining a transverse field without external electrical power for the CLAS12 experiment (USA, JLAB, 2013-2018).

The undersigned has been responsible for the magnetic design of the superconducting system for the target of the proposal for the CLAS12 experiment (USA, JLAB, 2011-2013). In view of the insertion of a transversely polarized target in the CLAS12 experiment at JLab, a magnetic system was required to shield the existing solenoid (5 T) as well as a magnet to generate a transverse magnetic field of 0.5 T – 1.2 T to maintain the polarization (spin) of a solid hydrogen and deuterium target.

Research Funded by Columbus Superconductors

Design and implementation of the research and development project for a system to measure the electrical transport properties of superconducting wires as a function of deformation, with operating temperatures up to 20 K and current up to 600 A (Ferrara, 2010-2017).

ELI-NP

The undersigned was responsible for the vacuum system for the analysis of high and low energy beams for the beam diagnostics of the Extreme Light Infrastructure - Nuclear Physics ELI-NP project (Magurele, RO, 2012-2015).

NA62

The undersigned collaborated in the design and implementation of the vacuum and data acquisition system of a cooling system prototype for the silicon detector GigaTracker for the NA62 experiment (CERN, 2010-2011). The prototype built and characterized allows cooling with gaseous nitrogen at a temperature of about 100 K a silicon detector inside a high vacuum chamber.

LAUE

The undersigned was responsible for the design, industrial realization, and installation of the vacuum system for X-ray lens tests for the LAUE project at the LARIX laboratory (Ferrara, 2009-2013). Design, purchase, and installation of a 21 m long vacuum tube with a diameter of 650 mm, related mechanical supports, pumping system, pressure measurement system, and 650 mm diameter vacuum flanges made of 2 mm thick carbon fiber. The system is part of a laboratory for the realization of X-ray lenses to be installed on satellites.

Nitrogen Liquefier at the University of Ferrara

The undersigned was responsible for the operation of the nitrogen liquefier of the Department of Physics and Earth Sciences (Ferrara, 2009-2015) including transport to the new location, installation, and commissioning. The undersigned was responsible for the operation of the machine and the related liquid nitrogen supply service, coordinating up to three technicians

PAX

The undersigned was co-responsible for the commissioning and operation of the polarized gas target and polarimeter of the PAX experiment installed at FZJ (Juelich, Germany 2006-2015). The system includes an ultra-high vacuum system, a polarized neutral atomic hydrogen source, an accumulation system with its magnetic field, and a polarimeter. The undersigned was also responsible for the conceptual design of the superconducting magnetic system for the technical design report for the PAX experiment (2006), a project that involves the spin polarization of an antiproton beam. The undersigned worked on a dipole magnet to maintain the polarization of a gas target and a toroid for the detector for the PAX technical proposal.

HERMES, DESY

The undersigned was responsible for the commissioning and operation of the NbTi superconducting solenoid of the recoil detector for the HERMES experiment, (DESY, Germany 2005-2006).

Teaching:

a.1) **University Courses**

- Applied Superconductivity Laboratory (6 CFU) a.y. 2016/2017, course instructor as adjunct professor.
- Applied Superconductivity Laboratory (6 CFU) a.y. 2019/2020, course instructor as adjunct professor.
- Applied Superconductivity Laboratory (6 CFU) a.y. 2021/2022, course instructor as adjunct professor.
- Applied Superconductivity Laboratory (6 CFU) a.y. 2023/2024, course instructor as adjunct professor.

a.2) **Other Courses:**

- 'Superferric magnets' at CAS course on Normal- and Superconducting Magnets, 19 November - 02 December 2023, St. Pölten, Austria. CERN Accelerator School (CAS), proceedings in preparation.

b) **Thesis Co-Supervisor**

- *Study of optimized HTS solenoid configurations for the beam cooling of a Muon Collider*, Jonathank Pavan, Politecnico di Milano, Master's degree in the School of Industrial and Information Engineering. 18-07-2023, Supervisor Marco Beghi, Co-Supervisors Bernardo Bordini, Luca Bottura, Lucio Rossi, Marco Statera.
- *Construction and characterization of a MgB2 round coil for superconducting magnets*, Riccardo Valente, University of Milan, Master's degree in Physics, 04-04-2018, Supervisor Prof. Massimo Sorbi, Co-Supervisor Dr. Marco Statera.
- *Electromagnetic Study and Design of a superconductive corrector magnet with MgB2 coils*, Samuele Mariotto, University of Milan, Bachelor's degree in Physics, 04-10-2017, Supervisor Prof. Massimo Sorbi, Co-Supervisor Dr. Marco Statera.

In fede

Dr. Marco Statera

Alessandra Pampaloni

Esperienze Lavorative

Durante la tesi magistrale, svolta presso il Translational Neural Engineering Laboratory (TNE) all' École Polytechnique Fédérale de Lausanne (EPFL), e durante il successivo periodo di collaborazione post-laurea con questo gruppo di ricerca ho acquisito le competenze di base per la progettazione agli elementi finiti utilizzando il software COMSOL per costruire un modello di nervo periferico umano da utilizzare come piattaforma per testare la capacità di registrazione di differenti elettrodi neurali. In seguito, sono stata tirocinante presso l'Area di Produzione Software e Infrastrutture ICT di Liguria Digitale. Durante questo periodo ho potuto consolidare le mie competenze di programmazione con linguaggio Java nell'ambito del progetto Fascicolo Sanitario Elettronico Ligure. Infine, da novembre 2017 lavoro nel laboratorio di superconduttività applicata presso la Sezione di Genova dell'Istituto Nazionale di Fisica Nucleare (INFN). Sono coinvolta nella progettazione meccanica, magnetica e dei sistemi di protezione dal quench di magneti superconduttori per acceleratori di particelle mediante codici a elementi finiti (ANSYS, ROXIE, OPERA, LEDET) nell'ambito dei progetti High-Luminosity LHC (HL-LHC), Future Circular Collider (FCC) e High Field Magnet (HFM). Da maggio 2021 sono responsabile del design magnetico e meccanico del dipolo di separazione/ricombinazione per HL-LHC. Da maggio 2022 sono responsabile del design meccanico e del controllo di qualità del dipolo FalconD per il programma HFM.

Settembre 2023 – in corso

Tecnologo a tempo indeterminato

Istituto Nazionale di Fisica Nucleare (INFN) – Sezione di Genova

- progettazione meccanica, magnetica e dei sistemi di protezione dal quench di magneti superconduttori per acceleratori di particelle mediante codici a elementi finiti (ANSYS, ROXIE, OPERA, LEDET) nell'ambito dei progetti HL-LHC (http://hilumilhc.web.cern.ch/), FCC (https://fcc.web.cern.ch/) e HFM;
- responsabilità del design magnetico e meccanico del dipolo di separazione/ricombinazione per l'upgrade di luminosità dell'acceleratore di particelle LHC al CERN (https://edms.cern.ch/ui/file/1865349/16/struct.pdf);
- responsabilità del design meccanico e del controllo di qualità del dipolo FalconD per il programma HFM;
- follow-up industriale per la realizzazione dei dipoli di separazione/ricombinazione per il progetto HL-LHC;
- attività di coordinamento e gestione all'interno del gruppo di lavoro;
- redazione di report tecnici e articoli scientifici per riviste internazionali peer-reviewed.

Novembre 2021 – settembre 2023

Tecnologo a tempo determinato

Istituto Nazionale di Fisica Nucleare (INFN) – Sezione di Genova

- progettazione meccanica, magnetica e dei sistemi di protezione dal quench di magneti superconduttori per acceleratori di particelle mediante codici a elementi finiti (ANSYS, ROXIE, OPERA, LEDET) nell'ambito dei progetti HL-LHC (http://hilumilhc.web.cern.ch/), FCC (https://fcc.web.cern.ch/) e HFM;

- responsabilità del design magnetico e meccanico del dipolo di separazione/ricombinazione per l'upgrade di luminosità dell'acceleratore di particelle LHC al CERN (https://edms.cern.ch/ui/file/1865349/16/struct.pdf);
- responsabilità del design meccanico e del controllo di qualità del dipolo FalconD per il programma HFM;
- follow-up industriale per la realizzazione dei dipoli di separazione/ricombinazione per il progetto HL-LHC;
- attività di coordinamento e gestione all'interno del gruppo di lavoro;
- redazione di report tecnici e articoli scientifici per riviste internazionali peer-reviewed.

Novembre 2017 – novembre 2021

Assegnista di ricerca

Istituto Nazionale di Fisica Nucleare (INFN) – Sezione di Genova

- progettazione meccanica e magnetica di magneti superconduttori per acceleratori di particelle mediante codici a elementi finiti (ANSYS, ROXIE, OPERA) nell'ambito dei progetti HL-LHC (http://hilumilhc.web.cern.ch/) e FCC (https://fcc.web.cern.ch/);
- redazione di report tecnici e articoli scientifici per riviste internazionali peer-reviewed;
- responsabilità del design magnetico e meccanico del dipolo di separazione/ricombinazione per l'upgrade di luminosità dell'acceleratore di particelle LHC al CERN (https://edms.cern.ch/ui/file/1865349/16/struct.pdf);
- follow-up industriale per la realizzazione dei dipoli di separazione/ricombinazione per il progetto HL-LHC.

Dicembre 2016 – giugno 2017

Tirocinante

Liguria Digitale – Area di Produzione Software e Infrastrutture ICT

- realizzazione mediante codice Java dell'applicazione di consultazione dedicata all'operatore sanitario nell'ambito del Progetto Strategico Fascicolo Sanitario Elettronico Ligure (https://www.fascicolosanitario.liguria.it/fselig/);
- risoluzione di segnalazioni riguardanti lo strato di presentazione dei siti web del Fascicolo Sanitario Elettronico;
- correzione, completamento e ottimizzazione del codice software relativo alla creazione e all'invio dei messaggi di audit riguardanti il sistema di protezione dei dati personali del Fascicolo Sanitario Elettronico.

Aprile 2016 – agosto 2016

Collaboratore

École Polytechnique Fédérale de Lausanne (EPFL) – Translational Neural Engineering Laboratory (TNE)

- sviluppo di nuovi metodi per la modellazione del sistema nervoso periferico umano al fine di progettare una neuroprotesi bidirezionale in grado di registrare i segnali motori che regolano le azioni della mano amputata per il controllo della protesi meccanica e di fornire un feedback sensoriale attraverso la stimolazione dell'adeguata via afferente all'interno dell'arto restante;
- progettazione di un modello di nervo periferico umano basato su dati anatomici mediante codici a elementi finiti (COMSOL) utilizzato come piattaforma per testare la capacità di registrazione di diverse tipologie e geometrie di elettrodi neurali impiantabili;
- redazione di report tecnici e articoli scientifici per riviste internazionali.

Corsi di Formazione

Agosto 2025

European Scientific Institute (ESI)

TOSCA (Techniques of Oversight in Scientific project Administration) Summer School

Giugno 2025

Conseil européen pour la recherche nucléaire (CERN)

Superconducting Magnet Test Stands, Magnet Protections and Diagnostics (TIDM^2 x Superconducting Magnets)

Marzo 2025

Istituto Nazionale di Fisica Nucleare (INFN)

Ansys Mechanical (livello base) per modellazione e simulazioni strutturali

Gennaio – febbraio 2025

European Scientific Institute (ESI)

Joint Universities Accelerator School Course 1 – The Science of Particle Accelerator

Ottobre 2022

Istituto Nazionale di Fisica Nucleare (INFN)

Corso Nazionale per la gestione di progetti – INFN Project Management

Marzo 2020

TechnoSoft

Corso di formazione per l'utilizzo del codice di modellazione elettromagnetica OPERA-3d

Formazione Accademica

Novembre 2024 – in corso

Sapienza Università di Roma – Dipartimento di Fisica

Dottorato in Fisica e Tecnologie degli Acceleratori

Settembre 2013 – marzo 2016

Università degli Studi di Genova – Scuola Politecnica di Ingegneria e Architettura

Laurea Magistrale in Bioingegneria – curriculum: Neuroengineering and bio-ICT

Titolo tesi: "Modello di nervo mediano umano per il design ottimale di un elettrodo neurale impiantabile"

Sede di svolgimento: École Polytechnique Fédérale de Lausanne – Translational Neural Engineering Laboratory (TNE)

Relatore: Sergio Martinoia

Votazione: 110/110 con lode

Settembre 2010 – marzo 2014

Università degli Studi di Genova – Scuola Politecnica di Ingegneria e Architettura

Laurea in Ingegneria Biomedica

Titolo tesi: “Valutazione elettrofisiologica di reti neuronali corticali durante stimolazione elettrica per applicazioni di neurofarmacologia”

Sede di svolgimento: Università degli Studi di Genova – Dipartimento di Informatica, Bioingegneria, Robotica e Ingegneria dei Sistemi (DIBRIS)

Relatore: Sergio Martinoia

Votazione: 92/110

Maggio 2013

Università degli Studi di Genova – Scuola Politecnica di Ingegneria e Architettura

NI Certified LabVIEW associate developer

Settembre 2005 – luglio 2010

Liceo Scientifico Statale G. D. Cassini – Genova

Diploma di Maturità scientifica

Competenze Linguistiche

Italiano

Madrelingua

Inglese

Autonomo (B2)

Capacità e Competenze

Sistemi operativi: Windows, Linux

Codici per l’analisi agli elementi finiti: ANSYS, COMSOL, OPERA, ROXIE, LEDET

Linguaggi di programmazione e di markup: Java, LabVIEW, MATLAB, XML, HTML

Software per la Continuous Integration: Tortoise SVN, Jenkins, Jira

Applicazioni e programmi: Suite Microsoft Office, LaTeX

Predisposizione al lavoro di gruppo sviluppata durante le esperienze presso il TNE, Liguria Digitale e INFN

Progettazione meccanica, magnetica e dei sistemi di protezione dal quench di magneti superconduttori

Buone doti comunicative

Patente di guida internazionale B

Attività di Collaborazione con l’Università

A partire dall’A.A. 2022/2023 sono stata nominata cultore della materia per l’insegnamento “Acceleratori di Particelle” presso il Corso di Studi di Fisica dell’Università degli Studi di Genova;

A partire dall’A.A. 2022/2023 sono stata membro della commissione d’esame per l’insegnamento “Acceleratori di Particelle” presso il Corso di Studi di Fisica dell’Università degli Studi di Genova;

Relatrice della tesi di Laurea Magistrale in Fisica “Magnetic and mechanical design of the large aperture HTS superconducting dipoles for the accelerator ring of the Muon Collider”, svolta dallo studente Tommaso Maiello presso l’Università degli Studi di Genova, A.A. 2023 – 2024.

Divulgazione Scientifica e Terza Missione

Membro del comitato organizzativo locale di Genova per la manifestazione Pint of Science (maggio 2022);
Membro del comitato organizzativo locale di Genova per la manifestazione Pint of Science (maggio 2023);
Tutor locale del progetto HOP (Hands On Physics), evento di formazione per docenti (dicembre 2023);
Membro del comitato organizzativo locale di Genova per la manifestazione Pint of Science (maggio 2024);
Tutor locale del progetto HOP (Hands On Physics), evento di formazione per docenti (dicembre 2024);
Membro del comitato organizzativo locale di Genova per la manifestazione Pint of Science (maggio 2025).

Attività in Comitati Editoriali e di Revisore di Articoli per Riviste Peer-Reviewed

Ottobre 2023 – in corso: Technical Editor per la rivista IEEE Transactions on Applied Superconductivity
Revisore di nove articoli pubblicati su IEEE Transactions on Applied Superconductivity
Revisore di due articoli pubblicati su IEEE Transactions on Nuclear Science

Partecipazione a Conferenze con Contributo Personale

- Applied Superconductivity Conference 2018, Seattle (2018), poster dal titolo “Preliminary Design of the Recombination Dipole for Future Circular Collider”;
- Applied Superconductivity Conference 2020, Virtual Conference (2020), poster dal titolo “Preliminary Design of the Nb_3Sn $Cos\theta$ Short Model for the FCC”;
- Magnet Technology 2021, Fukuoka, Japan and Virtual Conference (2021), poster dal titolo “Mechanical Design of FalconD, a Nb_3Sn $Cos\theta$ Short Model Dipole for the Future Circular Collider”;
- Magnet Technology 2023, Aix-en-Provence, France (2023), poster dal titolo “Field Quality Analysis of the Separation-Recombination Dipole MBRD for the High-Luminosity Upgrade of LHC”;
- 13th HL-LHC Collaboration Meeting, Vancouver, Canada (2023), contributo orale in sessione plenaria dal titolo “Status of D2”;
- Terza Giornata Acceleratori, INFN – LNF, Italia (2024), contributo orale in sessione plenaria dal titolo “Attività INFN-GE/MI e R&D HFM per European Strategy”;
- MuCol Mini-Workshop on Rapid Cycled Synchrotrons, pulsed magnet and powering, CERN (2024), contributo orale in sessione plenaria dal titolo “SC steady magnet concept and design studies”;
- Applied Superconductivity Conference 2024, Salt Lake City, Utah (2024), contributo orale in sessione parallela dal titolo “The MBRD Magnet for the High Luminosity LHC: Design Improvements in the Series Production”;
- Quarta Giornata Acceleratori, INFN – LNL, Italia (2025), contributo orale in sessione plenaria dal titolo “INFN Genova activities for future accelerator magnets”;

- IMCC and MuCol Annual Meeting 2025, DESY – Amburgo (2025), poster dal titolo “Magnetic and Mechanical Design of Large Aperture HTS Superconducting Dipole for the Muon Collider Accelerator Ring”;
- Future Circular Collider Week 2025, Vienna, Austria (2025), contributo orale in sessione parallela dal titolo “Status of HFM development at INFN”;
- Magnet Technology Conference 2025, Boston, Massachusetts (2025), contributo orale in sessione parallela dal titolo “Status of series production and cold test results of the first series Hi Luminosity LHC Main Bending Recombination Dipole magnets”.

Partecipazione a comitati organizzativi

Membro del comitato locale di organizzazione (conference coordinator) del “14th HL-LHC Collaboration Meeting”, 7 – 10 ottobre 2024, Genova (Italia) (https://indico.cern.ch/event/1421594/overview).

Partecipazione a commissioni di concorso

Membro della commissione di concorso TD/NA/C6/26311/PNRR per l’assunzione di dieci unità di personale per il profilo professionale di Collaboratore Tecnico E.R. di VI livello professionale con contratto di lavoro a tempo determinato della durata di 12 mesi.

Pubblicazioni su Riviste Peer-Reviewed

1) Preliminary Design of a Block-Coil Magnet for the Muon Collider Ring
   L. Alfonso et al..
   10.1109/TASC.2024.3510234
   IEEE Trans.Appl.Supercond. 35 (2024) no.5, 4000405.
2) 2D mechanical representation of superconducting magnets: A comparative study of plane stress and plane strain
   N. Sala et al..
   10.1016/j.cryogenics.2024.103956
   Cryogenics 144 (2024) no. 103956.
3) MBRD Prototype Cold Tests: Mechanical Stability and Performances
   A. Bersani et al..
   10.1109/TASC.2024.3371938
   IEEE Trans.Appl.Supercond. 34 (2024) no.5, 4005005.
4) Analytical and Numerical Study of Superconducting Dipole and Quadrupole Performance Limits for a Muon Collider
   D. Novelli et al..
   10.1109/TASC.2024.3507744
   IEEE Trans.Appl.Supercond. 35 (2024) no.5, 4000205.
5) Challenges and Perspectives of the Superconducting Magnets for the Muon Collider Storage Ring

B. Caiffi et al..
10.1109/TASC.2025.3529424
IEEE Trans.Appl.Supercond. 35 (2025) no.5, 4002007.

6) Design Enhancements of the MBRD Magnet for High Luminosity LHC: The Ongoing Status of the Series Production
A. Pampaloni et al..
10.1109/TASC.2025.3537598
IEEE Trans.Appl.Supercond. 35 (2025) no.5, 4002405.

7) Preliminary Electromagnetic and Mechanical Design of a Cos Dipole for the Muon Collider Study
F. Mariani et al..
10.1109/TASC.2024.3519077
IEEE Trans.Appl.Supercond. 35 (2025) no.5, 4000805.

8) Advancements in Nb3Sn 12 T Cos-Theta Dipole Development for Next-Generation Accelerators: The INFN-CERN Collaboration on the FalconD Project
S. Farinon et al..
10.1109/TASC.2024.3520944
IEEE Trans.Appl.Supercond. 35 (2025) no.5, 4001905.

9) Consolidated 2D Mechanical Design and Preliminary 3D Design Phase of the Superconducting Ion Gantry (SIG) Dipole for Hadron therapy
E. Bianchi et al..
10.1109/TASC.2024.3520080
IEEE Trans.Appl.Supercond. 35 (2025) no.5, 4001105.

10) Design of a Four-Layer Nb3Sn Cos-Theta Dipole in the CERN High Field Magnet R&D Program
R. U. Valente et al..
10.1109/TASC.2024.3515962
IEEE Trans.Appl.Supercond. 35 (2025) no.5, 4100105.

11) Magnetic and Mechanical Design of the Large Aperture HTS Superconducting Dipoles for the Accelerator Ring of the Muon Collider
F. Levi et al..
10.1109/TASC.2024.3520073
IEEE Trans.Appl.Supercond. 35 (2025) no.5, 4000905.

12) Winding Test Results of an Innovative Technique for Block Coil Curved Dipoles in the Development of a Gantry for Hadron-Therapy
A. Gagno et al..
10.1109/TASC.2025.3532921
IEEE Trans.Appl.Supercond. 35 (2025) no.5, 4400405.

13) High Field Magnet Programme -- European Strategy Input
B. Auchmann et al..

10.48550/arXiv.2504.16885
arXiv, April 2025.

14) Future Circular Collider Feasibility Study Report: Volume 1, Physics, Experiments, Detectors
M. Benedikt et al..
10.48550/arXiv.2505.00272
arXiv, April 2025.

15) The Muon Collider
C. Accettura et al..
10.48550/arXiv.2504.21417
arXiv, January 2025.

16) Interim report for the International Muon Collider Collaboration (IMCC)
C. Accettura et al..
10.48550/arXiv.2407.12450
arXiv, January 2025.

17) MuCol Milestone 5 - WP1 - Preliminary parameters.
R. Taylor et al..
10.5281/zenodo.13970100
Zenodo, October 2024.

18) 2D EM Design and Innovative Winding Technique for a 4 T High Curvature Superconducting Dipole in Block Coil Configuration for Next Generation Ion Gantries.
A. Gagno et al..
10.1109/TASC.2023.3335181
IEEE Trans.Appl.Supercond. 34 (2024) no.5, 4400305.

19) Mechanical Design of the 4 T Curved Demonstrator Dipole for the SIG Gantry.
F. Levi et al..
10.1109/TASC.2023.3333262
IEEE Trans.Appl.Supercond. 34 (2024) no.5, 4400505.

20) Status on the Development of the Nb_3Sn 12 T Falcon Dipole for the FCC-hh.
R. U. Valente et al..
10.1109/TASC.2023.3338166
IEEE Trans.Appl.Supercond. 34 (2024) no.3, 4900405.

21) Field Quality Analysis of the Separation-Recombination Dipole MBRD for the High-Luminosity Upgrade of LHC.
A. Pampaloni et al..
10.1109/TASC.2023.3345826
IEEE Trans.Appl.Supercond. 34 (2024) no.5, 4000505.

22) Analytical evaluation of dipole performance limits for a Muon Collider.
D. Novelli et al..

10.1109/TASC.2024.3352526
IEEE Trans.Appl.Supercond. 34 (2024) no. 5, 4002405.

23) The Development of MBRD magnets, the Separation/Recombination Dipoles for the LHC High Luminosity Upgrade.
S. Farinon et al..
10.1109/TASC.2024.3357469
IEEE Trans.Appl.Supercond. 34 (2024) no. 5, 4003205.

24) Validation of the Protection Scheme for the HL-LHC MBRD Magnet by Simulations and Prototype Tests.
B. Caiffi et al..
10.1109/TASC.2023.3346363
IEEE Trans.Appl.Supercond. 34 (2024) no.5, 4001405.

25) Optimization of Electromagnetic Design After Winding Tests for the Nb3Sn Cos-Theta Dipole Model for FCC-hh.
R. U. Valente et al..
10.1109/TASC.2023.3246421
IEEE Trans.Appl.Supercond. 33 (2023) no.5, 4601107.

26) The superconducting space magnet of the ALADInO spectrometer.
R. Musenich et al..
10.1016/j.nima.2023.168239
Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment 1051 (2023), 168239.

27) Protection Scheme Effectiveness Study for the High-Luminosity LHC MBRD Magnet.
B. Caiffi et al..
10.1109/TASC.2023.3247984
IEEE Trans.Appl.Supercond. 33 (2023) no.5, 4701304.

28) Updates on the Mechanical Design of FalconD, a Nb_3Sn $Cos\theta$ Short Model Dipole for the FCC-hh.
F. Levi et al..
10.1109/TASC.2023.3241832
IEEE Trans.Appl.Supercond. 33 (2023) no.5, 4000805.

29) Status and Challenges of the Nb-Ti and Nb_3Sn Interaction Region Magnets for High-Luminosity LHC.
E. Todesco et al..
10.1109/TASC.2023.3244143
IEEE Trans.Appl.Supercond. 33 (2023) no.5, 4001608.

30) The MBRD Dipoles for the High Luminosity LHC: from Prototype Tests to the Beginning of the Series Production.
S. Farinon et al..
10.1109/TASC.2023.3238988
IEEE Trans.Appl.Supercond. 33 (2023) no.5, 4000306.

31) Mechanical Design of FalconD, a Nb_3Sn $Cos\theta$ Short Model Dipole for the FCC.
A. Pampaloni et al..
10.1109/TASC.2022.3149679.
IEEE Trans.Appl.Supercond. 32 (2022) no.6, 4000605.
32) Numerical Model, Parametric Analysis, and Optimization of FCC's 16 T Main Dipole Baseline Design.
C. Kokkinos et al..
10.1109/TASC.2022.3152710.
IEEE Trans.Appl.Supercond. 32 (2022) no.6, 4001306.
33) The Separation-Recombination Dipole MBRD for the High-Luminosity LHC: from Prototype to Series.
F. Levi et al..
10.1109/TASC.2022.3160975.
IEEE Trans.Appl.Supercond. 32 (2022) no.6, 4003905.
34) Update on the Electromagnetic Design of the Nb_3Sn $Cos\theta$ Dipole Model for FCC-hh.
R. U. Valente et al..
10.1109/TASC.2022.3152100.
IEEE Trans.Appl.Supercond. 32 (2022) no.4, 4001005.
35) A European Collaboration to Investigate Superconducting Magnets for Next Generation Heavy Ion Therapy.
L. Rossi et al..
10.1109/TASC.2022.3147433.
IEEE Trans.Appl.Supercond. 32 (2022) no.4, 4400207.
36) Design Study of the Nb_3Sn $Cos\theta$ Dipole Model for FCC-hh.
R. U. Valente et al..
10.18429/JACoW-IPAC2021-TUPAB386.
JACoW IPAC 2021 (2021).
37) The High Luminosity LHC Interaction Region Magnets Towards Series Production.
E. Todesco et al..
10.1088/1361-6668/abdba4.
Supercond. Sci. Technol. 34 053001 (2021).
38) Technical Design Report of the FalconD Nb_3Sn $Cos\theta$ Dipole Model for the FCC-hh at CERN.
S. Burioli et al..
https://www.lnf.infn.it/sis/preprint/getfilepdf.php?filename=INFN-22-01-GE.pdf.
SIS – Pubblicazioni Laboratori Nazionali di Frascati – INFN Technical Notes (2021).
39) Study of Superconducting Magnetization Effects and 3D Electromagnetic Analysis of the Nb_3Sn $Cos\theta$ Short Model for FCC.
R. U. Valente et al..
10.1109/TASC.2021.3059981.
IEEE Trans.Appl.Supercond. 31 (2021) no.5, 4002205.
40) Preliminary Design of the Nb_3Sn $Cos\theta$ Short Model for the FCC.

A. Pampaloni et al..
10.1109/TASC.2021.3061334.
IEEE Trans.Appl.Supercond. 31 (2021) no.5, 4900905.

41) The Development of the Superconducting Dipoles D2 for the High Luminosity Upgrade of LHC.
B. Caiffi et al..
10.1109/TASC.2021.3057561.
IEEE Trans.Appl.Supercond. 31 (2021) no.5, 4000405.

42) Electromagnetic and Mechanical Study for the Nb_3Sn $Cos\theta$ Dipole Model for the FCC.
R. U. Valente et al..
10.1109/TASC.2020.2972219.
IEEE Trans.Appl.Supercond. 30 (2020) no.4, 4001905.

43) Design of the 16 T Bending Dipole for the Future Circular Collider.
A. M. Ricci et al..
10.1393/ncc/i2020-20094-3.
Published online on 8 September 2020, Article: 94, Open Access.

44) Microneurography as a Tool to Develop Decoding Algorithms for Peripheral Neuro-controlled Hand Prostheses.
F. M. Petrini et al..
10.1186/s12938-019-0659-9.
Biomed Eng Online. 2019 Apr 8;18(1):44.

45) FCC Physics Opportunities: Future Circular Collider Conceptual Design Report Volume 1.
FCC Collaboration (A. Abada et al.).
10.1140/epjc/s10052-019-6904-3.
Eur.Phys.J.C 79 (2019).

46) FCC-ee: The Lepton Collider: Future Circular Collider Conceptual Design Report Volume 2.
FCC Collaboration (A. Abada et al.).
10.1140/epjst/e2019-900045-4.
Eur.Phys.J.ST 228 (2019).

47) FCC-hh: The Hadron Collider: Future Circular Collider Conceptual Design Report Volume 3.
FCC Collaboration (A. Abada et al.).
10.1140/epjst/e2019-900087-0.
Eur.Phys.J.ST 228 (2019).

48) HE-LHC: The High-Energy Large Hadron Collider: Future Circular Collider Conceptual Design Report Volume 4.
FCC Collaboration (A. Abada et al.).
10.1140/epjst/e2019-900088-6.
Eur.Phys.J.ST 228 (2019).

49) The 16 T Dipole Development Program for FCC and HE-LHC.

D. Schoerling et al..
10.1109/TASC.2019.2900556.
IEEE Trans.Appl.Supercond. 29 (2019) no.5, 4003109.

50) Baseline Design of a 16 T $Cos\theta$ Bending Dipole for the Future Circular Collider.
R. U. Valente et al..
10.1109/TASC.2019.2901604.
IEEE Trans.Appl.Supercond. 29 (2019) no.5, 4003005.

51) Preliminary Design of the Recombination Dipole for Future Circular Collider.
A. Pampaloni et al..
10.1109/TASC.2019.2892725.
IEEE Trans.Appl.Supercond. 29 (2019) no.5, 4000504.

Autorizzo il trattamento dei miei dati personali presenti nel curriculum vitae ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 e del GDPR (Regolamento UE 2016/679).

Genova, 11/09/2025