

Curriculum formativo di Barbara Sciascia

- ottobre 1998: laurea in Fisica, conseguita presso l'Università degli studi di Roma "La Sapienza";
- novembre 1998 - gennaio 2002: dottorato di ricerca in Fisica, conseguito presso l'Università degli studi di Roma "La Sapienza";
- gennaio 2002 - dicembre 2004: assegno di ricerca quadriennale presso i Laboratori Nazionali di Frascati;
- dicembre 2004 - febbraio 2010: ricercatrice di III livello professionale con contratto a tempo determinato ai sensi dell'art. 23 D.P.R. 171/91 presso i Laboratori Nazionali di Frascati;
- a partire da febbraio 2010: ricercatrice di III livello professionale a tempo indeterminato presso i Laboratori Nazionali di Frascati.

Attività scientifica di Barbara Sciascia

La mia attività scientifica si è svolta nell'ambito della fisica sperimentale delle alte energie, studiando principalmente la fisica del *flavour* attraverso la partecipazione agli esperimenti KLOE e LHCb.

A partire dall'inizio della tesi di laurea nel 1997 e fino alla fine del 2013 ho collaborato all'esperimento **KLOE**, dove mi sono occupata prevalentemente della **Camera a Deriva** [1] e del **Sistema di Trigger** [2] dell'esperimento, nonché dello studio della fisica dei mesoni K carichi.

Grazie all'attività di ricerca in KLOE, ho collaborato allo studio della matrice CKM partecipando attivamente sia a diversi **CKM workshops** sia al Network europeo **FlaviaNet**. Sempre dal lavoro in KLOE è nata la sigla **KLONE** per la misura dell'efficienza di un prototipo del calorimetro di KLOE nel rivelare neutroni veloci.

Negli anni 2003 e 2004 ho collaborato alla caratterizzazione dei rivelatori di muoni per l'esperimento **LHCb**; di questa collaborazione faccio parte stabilmente dal 2011, occupandomi prevalentemente dello studio dei decadimenti rari $B_{(s)} \rightarrow \mu^+ \mu^-$ e di identificazione delle particelle cariche. Da gennaio 2017 sono responsabile locale del gruppo LHCb di Frascati (composto da una ventina di persone tra ricercatori, tecnici e tecnologi). Da aprile 2017 sono Deputy Chair dell'OPG (il gruppo che coordina tutte le operazioni di LHCb).

Negli anni dal 2000 al 2006 ho svolto **attività didattica** come assistente al corso di "Laboratorio di Esperimentazione di Fisica"; in parallelo alla attività di ricerca, dal 1998 mi occupo anche di **divulgazione scientifica**.

KLOE

L'esperimento KLOE è stato concepito per lo studio delle simmetrie fondamentali delle particelle attraverso lo studio del sistema dei mesoni K , prodotti dall'acceleratore e^+e^- di Frascati, Dafne. Ho contribuito a buona parte della vita dell'esperimento: dalla fase di costruzione del rivelatore alla sua messa in opera, dalla partecipazione alla campagna di

presa dati fino alla fase di analisi dei dati raccolti. A partire dal 2004 e fino al 2011, ho assunto spesso l'incarico di **Run Coordinator** dell'esperimento.

• **Camera a deriva (DC)** Ho partecipato alla costruzione della camera a deriva di KLOE [155, 181, 174] e ne ho seguito le operazioni per molti anni. I miei contributi specifici sono stati:

- in fase di costruzione, turni per la misura del corretto tensionamento dei fili, cablaggio dell'alta tensione, test della tenuta stagna;
- messa a punto della procedura di test per i chip-TDC progettati specificamente per la DC e test di buona parte dei chips stessi [175];
- progettazione e realizzazione del sistema di controllo (*slow control*) per i sistemi di alta tensione della DC e del calorimetro elettromagnetico (EMC); collaborazione nella realizzazione dello *slow control* dei sistemi di basse tensioni di DC e EMC, e del DAQ [134];
- partecipazione all'installazione del rivelatore nella sala sperimentale e test delle prestazioni usando i raggi cosmici [161];
- dal 2000 al 2006, turni di *DC expert on call* necessari per garantire una buona funzionalità della DC durante la presa dati, e assicurarne la corretta e costante calibrazione;
- **dal 2009 al 2013, responsabile della DC;**
- comissioning del rivelatore e del sistema del gas in vista della nuova presa dati a partire dal 2010 (sotto la sigla di KLOE2).

• **Trigger** Il lavoro per il trigger [153] è iniziato nel 1999 con l'installazione del trigger carico, ed è proseguito ininterrottamente fino al 2013. I miei contributi specifici sono stati:

- installazione *hardware* e calibrazione del trigger carico, temporizzazione e connessione con il sistema di acquisizione dati e controllo;
- implementazione del software necessario a controllare il buon funzionamento del trigger carico durante la presa dati [177];
- ottimizzazione della simulazione Monte Carlo (MC) del trigger, implementazione nel MC dell'elettronica del trigger carico;
- dal 2000 al 2013, turni di *Trigger expert on call* a garanzia del buon funzionamento sia hardware che software del sistema stesso;
- calibrazione e manutenzione costanti del trigger, in particolare per garantire la buona efficienza del sistema di misura online della luminosità e del livello dei fondi macchina dell'acceleratore Dafne, entrambi basati sul sistema di trigger di KLOE;
- **dal 2009 al 2013, responsabile del Sistema di trigger;**
- implementazione di metodi per la stima delle efficienze di trigger usate dalla maggior parte delle misure pubblicate da KLOE;

• **Offline** A partire dalla raccolta dati del 2000, il mio lavoro ha incluso una parte dedicata alla selezione dei dati e al controllo della loro qualità. I miei contributi specifici sono stati:

- progettazione e implementazione di algoritmi per la selezione online e offline degli eventi $\phi \rightarrow K^+ K^-$;
- scrittura e messa a punto dei programmi di “ritracciamento” degli eventi $\phi \rightarrow K^+ K^-$, necessario per l’elevata perdita di energia che caratterizza questi eventi rispetto agli altri;
- caratterizzazione dei fondi macchina prodotti da Dafne all’interno del rivelatore.
- dal 2004 al 2006, turni di *expert on call per l’Offline*, per la gestione sia della ricostruzione dei dati che della produzione dei campioni di eventi MC;

• **Fisica dei mesoni K** A partire dal lavoro di tesi di dottorato, ho cominciato a occuparmi di fisica del flavor, studiando in particolare la fisica dei mesoni K, sia all’interno dell’esperimento KLOE che in ambito internazionale. I miei contributi specifici hanno riguardato:

- la misura dei BR assoluti dei decadimenti $K^\pm \rightarrow \pi^0 e^\pm \nu$ e $K^\pm \rightarrow \pi^0 \mu^\pm \nu$ che ho curato in ogni sua parte [75];
- la misura del parametro V_{us} (angolo di Cabibbo) della matrice di mescolamento dei quark (CKM) usando i dati di KLOE [118, 70];
- la misura del rapporto $\Gamma(K \rightarrow e\nu(\gamma)) / \Gamma(K \rightarrow \mu\nu(\gamma))$ [55];

CKM e FlaviaNet

Grazie ai primi risultati prodotti dalle *B factories*, a partire dai primi anni 2000 è iniziato un intenso lavoro internazionale per la misura di tutti gli elementi della matrice CKM; questo lavoro si è concretizzato anche in una serie di *Workshops (International Workshop on CKM Unitarity Triangle)* e in un progetto di cooperazione europea (“FlaviaNet”, all’interno del sesto programma quadro). I miei contributi specifici sono stati dati:

- alla valutazione di V_{us} a partire dai dati sui decadimenti semileptonici dei K disponibili nel 2002 che ha messo in luce una possibile non unitarietà della matrice V_{CKM} [196, 195];
- alla misura del parametro V_{us} della matrice CKM e test di precisione del Modello Standard a partire da tutti i dati disponibili sui decadimenti leptonici e semileptonici alla fine del 2008, con revisione critica di tutte le misure precedenti [194, 191];
- come **convener del gruppo di lavoro “Precise determination of V_{ud} and V_{us} ”** nell’edizione 2012 del *CKM workshop* [189].

KLONE

Per tutta la sua durata, dal 2006 al 2010, ho fatto parte della collaborazione KLONE nata per misurare l’efficienza di prototipi del calorimetro a piombo e fibre scintillanti di KLOE nel rivelare i neutroni veloci. I miei contributi specifici sono stati:

- l'idea di misurare l'efficienza del calorimetro di KLOE nel rivelare i neutroni, sfruttando le particelle prodotte dalla interazione nucleare dei mesoni K negativi con la materia, interazione che rappresentavano un fondo da rigettare nella misura dei $BR(K_{\ell 3}^{\pm})$, trovando un valore 3-4 volte superiore a quanto atteso considerando il solo scintillatore;
- strumentazione dei prototipi e tre campagne di presa dati (tra il 2006 e il 2008) usando il fascio di neutroni presente presso il The Svedberg Laboratory di Uppsala (Svezia);
- analisi dei dati raccolti e conferma della stima iniziale fatta mediante i mesoni K negativi [187, 185, 186, 188].

LHCb

L'esperimento LHCb presso il CERN è stato progettato per lo studio della violazione della simmetria CP e dei decadimenti rari dei mesoni B e D. Ho collaborato a LHCb una prima volta negli anni 2003 e 2004, e poi stabilmente a partire dall'aprile del 2011. I miei contributi specifici riguardano lo studio dei decadimenti rari del mesone B, l'identificazione delle particelle cariche e l'ottimizzazione del trigger durante il Long Shutdown 1 (2013-2014) e all'inizio della presa dati di Run 2 (2015-2016). Partecipo attivamente alle operazioni dell'esperimento avendo assunto da aprile 2017 il ruolo di Deputy Chair dell'Operation Planning Group.

• **Analisi dati** Per quel che riguarda l'analisi dei dati, mi occupo principalmente dello studio dei decadimenti rari dei mesoni B. In particolare:

- ho collaborato a molte "edizioni" dello studio dei decadimenti rari $B_s \rightarrow \mu^+ \mu^-$ e $B^0 \rightarrow \mu^+ \mu^-$, che hanno portato prima alla misura di un limite superiore del $BR(B_s \rightarrow \mu^+ \mu^-)$ [572], poi alla prima osservazione del processo $B_s \rightarrow \mu^+ \mu^-$ [513], e infine all'evidenza per il decadimento $B_s \rightarrow \mu^+ \mu^-$ e a uno stringente limite superiore per il branching ration del $B^0 \rightarrow \mu^+ \mu^-$ [458]. Quest'ultimo risultato è stato combinato [360] con l'equivalente misura fatta dalla Collaborazione CMS, portando alla miglior conoscenza attuale dei processi rari $B_s \rightarrow \mu^+ \mu^-$ e $B^0 \rightarrow \mu^+ \mu^-$, in attesa dei nuovi risultati già in preparazione con i dati di Run 2.
- collaboro ai processi di referaggio interni alla Collaborazione e in particolare sono stata **chair del Referee Committee** per le misure [453], [427] e [220];
- i decadimenti semi-tauonici del mesone B ($B \rightarrow D\tau\nu$, $B \rightarrow D^*\tau\nu$) mostrano a oggi una deviazione di 4σ rispetto alle predizioni del Modello Standard. LHCb contribuisce a questa deviazione con un'accurata misura del $\mathcal{B}(\bar{B}^0 \rightarrow D^{*+}\tau^-\bar{\nu}_\tau)/\mathcal{B}(\bar{B}^0 \rightarrow D^{*+}\mu^-\bar{\nu}_\mu)$ [326]; molte altre sono in preparazione in canali di decadimento equivalenti, tra cui il $B \rightarrow D_s^*\tau\nu$ cui collaboro attivamente.

• **Particle identification** L'identificazione delle particelle cariche (PID) è uno degli elementi chiave degli eccellenti risultati ottenuti dalla Collaborazione LHCb. In questo ambito, ho collaborato prima alla caratterizzazione del *muon system* e ai processi di identificazione dei muoni, e poi all'ottimizzazione globale della PID. I miei contributi specifici sono:

- tra il 2003 e il 2004, partecipazione ai tests beam presso il PS e la GIF al CERN e analisi dei dati raccolti, dati attraverso cui sono state caratterizzate le camere del muon system [515, 25, 579, 124, 127];

- misura delle performance nella identificazione dei muoni durante il Run 1 [470] fondamentale per molte delle misure pubblicate da LHCb [459], [472], [527],...;
- studio del miglioramento delle performance del Muon System in vista dell'upgrade dell'esperimento [202];
- selezione dei campioni di controllo per la valutazione delle performance di PID dai dati;
- ottimizzazione degli algoritmi per valutare le performance globali della PID [355];
- da gennaio 2014 a marzo 2017 **ho coordinato la Particle Identification di LHCb** facendo per questo parte anche dei due gruppi di coordinamento delle attività dell'esperimento, il *Physics Planning Group*, che definisce le linee guida per massimizzare i risultati di fisica ottenibili, e l'*Operation Planning Group*, che ha il mandato di gestire le operazioni di presa dati.

● **Operations** Con *Operations* si definiscono tutte quelle attività intermedie tra la costruzione del rivelatore e l'analisi dei dati raccolti. Queste hanno assunto una particolare importanza nell'evoluzione del trigger di LHCb avvenuta tra Run 1 e Run 2: in estrema sintesi, in Run 2 i dati vengono ricostruiti con la stessa alta qualità tipica della ricostruzione offline durante Run 1. I miei contributi specifici sono stati:

- Implementazione della selezione dei campioni di controllo per la PID direttamente nel trigger [197];
- Validazione delle nuove selezioni usando i primi dati a 13 TeV e raffinamento delle selezioni per Run 2;
- La "qualità offline" della ricostruzione dei dati nel trigger, permette di produrre risultati di fisica senza ulteriori processamenti. Questo è stato possibile grazie allo sviluppo dell'applicazione *Tesla* [276]. Il mio contributo specifico è stato lo sviluppo degli strumenti necessari a validare l'equivalenza tra la qualità dei dati del trigger e dei dati "ricostruiti offline";
- Da agosto 2014 alla fine del 2015 ho fatto parte della **Early measurement task force** che aveva il mandato di ottimizzare la qualità dell'analisi dei primi dati raccolti a 13 TeV. Questa task force ha portato alla pubblicazione della prima misura di LHCb a 13, la sezione d'urto di produzione di J/ψ [312], una settimana dopo la fine della raccolta dei dati coinvolti. La misura della sezione d'urto della produzione del charm [307] ha richiesto studi più approfonditi che hanno portato anche a un'ulteriore ottimizzazione dell'applicazione *Tesla* [276];
- Partecipazione ai turni di presa dati con il ruolo di **Data Manager** o di **Shift Leader**.
- Da aprile 2017 sono Deputy Chair dell'OPG
- Dal 2017, turni da Run Chief (15 giorni di coordinamento generale della presa dati a supporto dei Run Coordinators).

● **Partecipazione a comitati**

- Ottobre 2014 - Dicembre 2016, coordinatrice dell'Early Career, Gender and Diversity (ECGD) office (http://lhcb.web.cern.ch/lhcb/ECGD_Office/ECGD-intro.html);

- Marzo - Giugno 2015, rappresentante di Italia e Spagna nel Search Committee per l'elezione del Physics Coordinator (biennio 2016-2017);
- Settembre 2015 - Marzo 2016, parte del gruppo di lavoro per l'istituzione dei "LHCb Early Career Scientist Awards" e dei "LHCb PhD Thesis Prizes";
- Da maggio 2016, rappresentante di LHCb nel gruppo di lavoro istituito dal CERN DG per la raccolta dei dati sulla carriera lavorativa degli ex-alumni del CERN.
- Ottobre - Dicembre 2016, parte del "HFAG acronym panel"¹.

Attività didattica

Negli Anni Accademici 2000-2001, 2001-2002, 2002-2003, 2004-2005 e 2005-2006, ho collaborato con il prof. A. Sciubba in qualità di assistente al corso di "Laboratorio di Esperimentazione di Fisica", frequentato, presso il Dipartimento di Energetica dell'Università degli Studi di Roma "Sapienza", dagli studenti dei corsi di laurea in Ingegneria Elettrica, Elettronica e Aerospaziale.

Nel 2012 ho seguito lo *stage formativo* (sostitutivo di un esame) di una studentessa della laurea specialistica in fisica delle particelle dell'Università di Tor Vergata, stage dedicato alla misura dell'efficienza di identificazione dei muoni in condizione di alto fondo in LHCb.

Nel 2015 ho seguito la tesi di laurea triennale dello studente M. Giovannetti su "Studio del decadimento $B_{s,d} \rightarrow \mu^+ \mu^-$ in LHCb"² presso l'Università La Sapienza, Roma.

Divulgazione scientifica

Mi occupo di divulgazione e comunicazione della scienza da molti anni e in molti modi, spaziando da progetti per i bambini delle scuole elementari e medie, fino a lezioni per i corsi di aggiornamento per insegnanti di fisica.

• **Progetto Quasar** Sono responsabile del *progetto Quasar*, poi diventato *EduKIDS*,³ presso i Laboratori Nazionali di Frascati (LNF), progetto ideato nel 2002 e dedicato alla divulgazione della "scienza difficile" verso bambini e ragazzi delle scuole elementari e medie. Da questa esperienza nel 2007 ho scritto e curato il libro *Da qui al big bang* che viene distribuito alle scuole in visita ai LNF ed è disponibile in e-book⁴.

• **Incontri di Fisica** Fin dal loro inizio, nel 2000, ho collaborato agli *Incontri di Fisica*, corso di aggiornamento per gli insegnanti di fisica delle scuole superiori organizzato ogni anno dai LNF. In particolare ho coordinato le attività di uno dei gruppi di lavoro negli anni dal 2004 al 2007 (analisi dati KLOE), poi nel 2011 (misure di raggi cosmici mediante tracciatore a fibre scintillanti) e nel 2016 (misura della vita media del mesone D^0 a LHCb).

• **Grande pubblico** Organizzazione e preparazione di lezioni pubbliche in diverse iniziative di divulgazione scientifica proposte dall'INFN, in particolare: *Open day* annuale dei LNF (a partire dal 1999), *Notte Europea dei Ricercatori* (edizioni 2006, 2007, 2010 e 2011), *Fisica in barca* (edizione 2011), *Stage formativi per studenti delle scuole superiori* (edizioni 1998, 2007, 2013),...

¹http://www.slac.stanford.edu/xorg/hfag/HFAGnamePanelReport_web.pdf

²http://www.infn.it/thesis/thesis_dettaglio.php?tid=10345

³<http://www.lnf.infn.it/edu/kids/>

⁴http://www.lnf.infn.it/edu/kids/uploads/EBOOK_Da_qui_al_Big_Bang_ITA_2015.pdf

- **Asimmetrie** Dal dicembre 2011 sono stata chiamata dal presidente dell'INFN, a far parte della **redazione scientifica** della rivista di divulgazione scientifica *Asimmetrie*⁵ edita dall'INFN.

- **International MasterClasses** Da alcuni anni partecipo al programma Masterclasses organizzato dall'IPPOG sia per l'analisi dei dati di Alice, Frascati 2014 e 2015, sia per l'analisi dati di LHCb, Bologna 2014 e 2015, Pavia 2016; Frascati 2016 e 2017. Di queste due ultime ho curato l'organizzazione di tutto l'evento che a Frascati consiste in una settimana di lezioni e discussioni con i circa 50 studenti coinvolti).

May 24, 2017

Barbara Sciascia

⁵www.asimmetrie.it/

Contributi a conferenze internazionali e invited talks:

- *38th International Conference on High Energy Physics*, Chicago 2016 [242][241]
- *The 16th International Conference on B-Physics at Hadron Machines*, Marseille 2016 [249];
- *12th conference on Flavor Physics & CP Violation 2014*, Marseille 2014;
- *The 14th International Conference on B-Physics at Hadron Machines*, Bologna 2013 [12];
- *International Conference on New Frontiers in Physics*, Kolymbari 2012;
- *10th International Conference on Heavy Quarks and Leptons*, Frascati 2010 [23];
- *6th Workshop on the CKM Unitarity Triangle*, Warwick 2010 [190];
- *22nd Conference on High Energy Physics (IFAE)*, Roma 2010;
- *Les Rencontres de Physique de la Vallée d'Aoste*, La Thuile 2010 [42];
- *Workshop of the FlaviAnet European Network*, Bari 2009;
- *Kaon International Conference*, Tsukuba 2009 [54];
- *International Workshop on $e+e-$ collisions from Phi to Psi*, Frascati 2008 [193];
- *IEEE Nuclear Science Symposium and Medical Imaging Conference*, Dresda 2008;
- *5th Workshop on the CKM Unitarity Triangle*, Roma 2008 [192];
- *34th International Conference on High Energy Physics*, Philadelphia 2008 [65];
- *2nd Flavianet general meeting*, Orsay 2007;
- *Kaon International Conference*, Frascati 2007 [93];
- *International Workshop on Discoveries in Flavour Physics at $e+e$ Colliders*, Frascati 2006 [101];
- *26th International Symposium on Physics in Collision*, Buzios 2006 [103]
- *16th Conference on High Energy Physics (IFAE)*, Torino 2004 [125];
- *2nd Workshop on the CKM Unitarity Triangle*, Durham 2003 [140];
- *1st Workshop on the CKM Unitarity Triangle*, CERN 2002 [196, 195];
- *Frontier Detectors for Frontier Physics*, Isola d'Elba 2000 [172];
- Segreteria Scientifica: *Lepton and Photon Interactions at High Energies*, Roma 2001;
- Organizzazione ed Editrice: *Workshop on Dark Forces at Accelerators*, Frascati 2012 [15].

Tesi

- [1] **“Il rivelatore di tracce dell’esperimento KLOE e prime misure con raggi cosmici”**
B. Sciascia, Tesi di Laurea.
http://www.infn.it/thesis/thesis_dettaglio.php?tid=2703
- [2] **“Studies of charged kaon decays with the KLOE experiment”**
B. Sciascia, Tesi di Dottorato.
http://www.infn.it/thesis/thesis_dettaglio.php?tid=1620

Pubblificazioni firmate (KLOE)

- [3] **“Kloe Recent Results: a Review”**
A. D. Santis *et al.*.
10.1142/9789814329682_0058
- [4] **“Precision measurements of the $e^+e^- \rightarrow \pi^+\pi^-(\gamma)$ cross section with the KLOE detector”**
G. Mandaglio *et al.* [KLOE-2 Collaboration].
10.1016/j.nuclphysbps.2014.09.028
Nucl. Phys. Proc. Suppl. **253-255**, 115 (2014).
- [5] **“Study of the Dalitz decay $\phi \rightarrow \eta e^+e^-$ with the KLOE detector”**
D. Babusci *et al.* [KLOE-2 Collaboration].
arXiv:1409.4582 [hep-ex]
10.1016/j.physletb.2015.01.011
Phys. Lett. B **742**, 1 (2015)
- [6] **“Studies of ϕ meson radiative decays with KLOE”**
A. Aloisio *et al.*.
10.1016/S0920-5632(03)90644-X
Nucl. Phys. Proc. Suppl. **117**, 677 (2003).
- [7] **“Annual Report: KLOE / KLOE2”**
A. Antonelli *et al.*.
- [8] **“Measurement of the absolute branching ratio of the $K^+ \rightarrow \pi^+\pi^-\pi^+(\gamma)$ decay with the KLOE detector”**
D. Babusci *et al.* [KLOE KLOE-2 Collaboration].
arXiv:1407.2028 [hep-ex]
10.1016/j.physletb.2014.09.033
Phys. Lett. B **738**, 128 (2014)
- [9] **“Search for light vector boson production in $e^+e^- \rightarrow \mu^+\mu^-\gamma$ interactions with the KLOE experiment”**
D. Babusci *et al.* [KLOE-2 Collaboration].
arXiv:1404.7772 [hep-ex]
10.1016/j.physletb.2014.08.005
Phys. Lett. B **736**, 459 (2014)

- [10] **“Test of CPT and Lorentz symmetry in entangled neutral kaons with the KLOE experiment”**
D. Babusci *et al.* [KLOE-2 Collaboration].
arXiv:1312.6818 [hep-ex]
10.1016/j.physletb.2014.01.026
Phys. Lett. B **730**, 89 (2014)
- [11] **“KLOE results in flavour physics and prospects for KLOE-2”**
E. Czerwinski *et al.* [KLOE KLOE-2 Collaboration].
10.1016/j.nuclphysbps.2013.06.005
Nucl. Phys. Proc. Suppl. **241-242**, 24 (2013).
- [12] **“The wrong flavor - topics on Kaon physics”**
B. Sciascia.
PoS Beauty **2013**, 052 (2013).
- [13] **“Status and perspectives of the KLOE-2 experiment”**
M. Martemianov *et al.* [KLOE-2 Collaboration].
10.1142/9789814436830_0071
- [14] **“Recent results on hadron physics at KLOE”**
P. Moskal *et al.* [KLOE and KLOE-2 Collaborations].
arXiv:1306.5740 [hep-ex]
- [15] **“Proceedings, Dark Forces at Accelerators (DARK2012) : Frascati, Italy, October 16-19, 2012”**
F. Bossi, S. Giovannella, P. Santangelo and B. Sciascia.
Frascati Phys. Ser. **56**, pp. 1 (2012).
- [16] **“A new limit on the CP violating decay $K_S \rightarrow 3\pi^0$ with the KLOE experiment”**
D. Babusci *et al.* [KLOE Collaboration].
arXiv:1301.7623 [hep-ex]
10.1016/j.physletb.2013.05.008
Phys. Lett. B **723**, 54 (2013)
- [17] **“Precision measurement of $\sigma(e^+e^- \rightarrow \pi^+\pi^-\gamma)/\sigma(e^+e^- \rightarrow \mu^+\mu^-\gamma)$ and determination of the $\pi^+\pi^-$ contribution to the muon anomaly with the KLOE detector”**
D. Babusci *et al.* [KLOE Collaboration].
arXiv:1212.4524 [hep-ex]
10.1016/j.physletb.2013.02.029
Phys. Lett. B **720**, 336 (2013)
- [18] **“Measurement of η meson production in $\gamma\gamma$ interactions and $\Gamma(\eta \rightarrow \gamma\gamma)$ with the KLOE detector”**
D. Babusci *et al.* [KLOE-2 Collaboration].
arXiv:1211.1845 [hep-ex]
10.1007/JHEP01(2013)119
JHEP **1301**, 119 (2013)
- [19] **“Limit on the production of a light vector gauge boson in phi meson decays with the KLOE detector”**
D. Babusci *et al.* [KLOE-2 Collaboration].
arXiv:1210.3927 [hep-ex]
10.1016/j.physletb.2013.01.067
Phys. Lett. B **720**, 111 (2013)

- [20] **“Measurement of $\Gamma(\eta \rightarrow \pi^+\pi^-\gamma)/\Gamma(\eta \rightarrow \pi^+\pi^-\pi^0)$ with the KLOE Detector”**
D. Babusci *et al.* [KLOE Collaboration].
arXiv:1209.4611 [hep-ex]
10.1016/j.physletb.2012.11.032
Phys. Lett. B **718**, 910 (2013)
- [21] **“Implications of LHCb measurements and future prospects”**
R. Aaij *et al.* [LHCb Collaboration].
arXiv:1208.3355 [hep-ex]
10.1140/epjc/s10052-013-2373-2
Eur. Phys. J. C **73**, no. 4, 2373 (2013)
- [22] **“Low energy QCD and ChPT studies with KLOE”**
F. Ambrosino *et al.*.
10.1393/ncc/i2011-10715-3
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R. Aaij *et al.* [LHCb Collaboration].
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R. Aaij *et al.* [LHCb Collaboration].
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R. Aaij *et al.* [LHCb Collaboration].
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- [559] **“Measurement of the B^\pm production cross-section in pp collisions at $\sqrt{s} = 7$ TeV”**
R. Aaij *et al.* [LHCb Collaboration].
arXiv:1202.4812 [hep-ex]
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R. Aaij *et al.* [LHCb Collaboration].
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R. Aaij *et al.* [LHCb Collaboration].
arXiv:1202.1080 [hep-ex]
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R. Aaij *et al.* [LHCb Collaboration].
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- [563] **“First observation of the decays $\bar{B}^0 \rightarrow D^+ K^- \pi^+ \pi^-$ and $B^- \rightarrow D^0 K^- \pi^+ \pi^-$ ”**
 R. Aaij *et al.* [LHCb Collaboration].
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 R. Aaij *et al.* [LHCb Collaboration].
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 R. Aaij *et al.* [LHCb Collaboration].
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 R. Aaij *et al.* [LHCb Collaboration].
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 R. Aaij *et al.* [LHCb Collaboration].
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- [568] **“Measurement of mixing and CP violation parameters in two-body charm decays”**
 R. Aaij *et al.* [LHCb Collaboration].
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 JHEP **1204**, 129 (2012)
- [569] **“Differential branching fraction and angular analysis of the decay $B^0 \rightarrow K^{*0} \mu^+ \mu^-$ ”**
 R. Aaij *et al.* [LHCb Collaboration].
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- [570] **“Measurement of the CP-violating phase ϕ_s in the decay $B_s^0 \rightarrow J/\psi \phi$ ”**
 R. Aaij *et al.* [LHCb Collaboration].
 arXiv:1112.3183 [hep-ex]
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 R. Aaij *et al.* [LHCb Collaboration].
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- [572] **“Search for the rare decays $B_s^0 \rightarrow \mu^+ \mu^-$ and $B^0 \rightarrow \mu^+ \mu^-$ ”**
 R. Aaij *et al.* [LHCb Collaboration].
 arXiv:1112.1600 [hep-ex]
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 Phys. Lett. B **708**, 55 (2012)
- [573] **“Evidence for CP violation in time-integrated $D^0 \rightarrow h^- h^+$ decay rates”**
 R. Aaij *et al.* [LHCb Collaboration].
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- [574] **“First observation of the decay $B_s^0 \rightarrow K^{*0} \bar{K}^{*0}$ ”**
 R. Aaij *et al.* [LHCb Collaboration].
 arXiv:1111.4183 [hep-ex]
 10.1016/j.physletb.2012.02.001
 Phys. Lett. B **709**, 50 (2012)
- [575] **“Measurement of b -hadron production fractions in 7 TeV pp collisions”**
 R. Aaij *et al.* [LHCb Collaboration].
 arXiv:1111.2357 [hep-ex]
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 Phys. Rev. D **85**, 032008 (2012)
- [576] **“Measurement of the effective $B_s^0 \rightarrow K^+ K^-$ lifetime”**
 R. Aaij *et al.* [LHCb Collaboration].
 arXiv:1111.0521 [hep-ex]
 10.1016/j.physletb.2011.12.058
 Phys. Lett. B **707**, 349 (2012)
- [577] **“First observation of the decay $\bar{B}_s^0 \rightarrow D^0 K^{*0}$ and a measurement of the ratio of branching fractions $\frac{\mathcal{B}(\bar{B}_s^0 \rightarrow D^0 K^{*0})}{\mathcal{B}(\bar{B}^0 \rightarrow D^0 \rho^0)}$ ”**
 R. Aaij *et al.* [LHCb Collaboration].
 arXiv:1110.3676 [hep-ex]
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 Phys. Lett. B **706**, 32 (2011)
- [578] **“Search for the lepton number violating decays $B^+ \rightarrow \pi^- \mu^+ \mu^+$ and $B^+ \rightarrow K^- \mu^+ \mu^+$ ”**
 R. Aaij *et al.* [LHCb Collaboration].
 arXiv:1110.0730 [hep-ex]
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 Phys. Rev. Lett. **108**, 101601 (2012)
- [579] **“High-rate performance of the MWPCs for the LHCb muon system”**
 M. Anelli *et al.*.
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May 24, 2017

BREVE CURRICULUM VITÆ

Danilo Domenici

Titoli di studio

- marzo 2004, Roma. **Dottorato di Ricerca in Fisica all'Università di Roma "Tor Vergata"**.
Tesi: "Detection of muons in the LHCb experiment: the aging of the RPC detectors and the study of $pp \rightarrow Z^0 \rightarrow \mu^+ \mu^-$ ". Pubbl. CERN-THESIS-2007-028, 2003.
- dicembre 2000, Roma. **Laurea in Fisica con votazione 110/110 all'Università di Roma "Tor Vergata"**.
Tesi: "Gli RPC per il rivelatore di Muoni di LHCb".

Posizione attuale

- da gennaio 2015. **Ricercatore ai Laboratori Nazionali di Frascati dell'INFN.**

Attività scientifica

Esperimento KLOE-2

- da febbraio 2014. Technical Manager dell'esperimento KLOE-2.
- da gennaio 2011. Costruzione dell'Inner Tracker a GEM cilindrica per il rivelatore KLOE-2.

Collaborazione RD51

- da novembre 2008. Sviluppo di tecnologie sui Micro-Pattern Gas Detector.

Esperimento HPPC di fisica medica

- 2005. Responsabile Nazionale dell'esperimento HPPC per lo sviluppo di un rivelatore per fisica medica.

Esperimento LHCb

- aprile 2005, LNF. Costruzione dei rivelatori a tripla-GEM per il rivelatore di Muoni.
- luglio 2004, CERN. Costruzione delle Multi-Wire Proportional Chambers per il rivelatore di Muoni.
- 2001-2004, Univ. Tor Vergata. Sviluppo sui rivelatori RPC per il rivelatore di Muoni.

Attività didattica e di divulgazione scientifica

- settembre 2016. Relatore alla "Notte Europea dei Ricercatori 2016".
- novembre 2016. Tutor al corso di formazione dell'INFN "Fisica e Comunicazione: Scienza e Scuola".
- dal 2016. Coordinatore dell'"OpenLabs" a LNF.
- dal 2010. Responsabile delle "IPPOG International Particle Physics Masterclass" a LNF.
- dal 2008. Relatore di seminari divulgativi presso scuole medie superiori.
- 2009. Tutor di laboratorio nel "I Seminario Nazionale Rivelatori Innovativi" dell'INFN a LNF.

Rilevanti presentazioni a conferenze

Relatore in piú di 20 conferenze scientifiche internazionali, tra cui:

- febbraio 2017, Novosibirsk, Russia. International Conference on Instrumentation for Colliding Beam Physics.
- ottobre 2016, Siena, 14th Topical Seminar on Innovative Particle and Radiation Detectors.
- febbraio 2013, Vienna, Austria. 13th Vienna Conference on Instrumentation.
- novembre 2011, Valencia, Spagna. IEEE Nuclear Science Symposium.
- maggio 2009, Isola d'Elba. XI Pisa Meeting on Advanced Detectors.
- ottobre 2008, Dresda, Germania. IEEE Nuclear Science Symposium.
- ottobre 2006, Nashville, USA. The Annual Meeting of the Division of Nuclear Physics of the American Physical Society.
- aprile 2006, Stanford, USA. International Symposium on Detector Development for Particle, Astroparticle and Synchrotron Radiation Experiments.

Rilevanti pubblicazioni

Autore di piú di 70 pubblicazioni su riviste scientifiche, tra cui:

- D. Domenici, "Construction and commissioning of the cylindrical-GEM inner tracker of KLOE-2," JINST **9** (2014) C09012.
- G. Bencivenni *et al.*, "A novel idea for an ultra-light cylindrical GEM based vertex detector," Nucl. Instrum. Meth. A **572** (2007) 168.
- M. Alfonsi *et al.*, "Activity of CERN and LNF groups on large area GEM detectors", Nucl. Instrum. Meth. A **617** (2010) 151-154.
- F. Anulli *et al.*, "A Hybrid Parallel Plates Gas Counter for medical imaging," Nucl. Instrum. Meth. A **572** (2007) 244.
- G. Carboni *et al.*, "A model for RPC detectors operating at high rate", Nucl. Instrum. Meth. A **498** (2003) 135-142.

Frascati, 1 Agosto 2017



Danilo Domenici

CURRICULUM VITAE (formato ridotto)

Gianluca Dalla Vecchia
Nato a Roma il 25/11/1966
Nazionalità italiana
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ESPERIENZA PROFESSIONALE

01-08-2016–attuale Responsabile del Servizio del Personale
Laboratori Nazionali di Frascati dell'INFN, Via Enrico Fermi, 40 – 00044
Frascati (RM) – Italia

- Assistenza al Direttore LNF nelle materie di competenza
- Predisposizione studi, statistiche, atti e documenti necessari
- Gestioni dotazioni organiche
- Assunzioni, gestione amministrativa del personale a tempo indeterminato, determinato e con contratto di collaborazione coordinata e continuativa
- Applicazione e verifica dell'osservanza delle norme contrattuali e di legge nelle materie di competenza
- Controllo dell'orario di lavoro e competenze accessorie connesse
- Consulenza e assistenza al personale LNF

01/06/2012–31/07/2016 Responsabile dell'Ufficio Concorsi, Borse di Studio, Utenti Esterni
Laboratori Nazionali di Frascati dell'INFN, Via Enrico Fermi, 40 – 00044
Frascati (RM) – Italia

- Istruzioni pratiche per l'emissione dei bandi per la selezione di personale a tempo determinato e indeterminato
- Preselezione domande dei candidati
- Funzioni di Componente e di Segretario nelle commissioni di concorso (svolgimento dell'intera procedura concorsuale e redazione atti finali)
- Gestione informatica dell'intera procedura per gli Assegni di Ricerca
- Gestione delle procedure che regolano l'attribuzione della qualifica di Ospite al personale esterno, che deve svolgere attività lavorativa nei LNF
- Interazione con il competente Ufficio dell'Amministrazione Centrale INFN per la gestione delle procedure informatizzate che regolano l'attribuzione della qualifica di Associato al personale esterno ai Laboratori (dall'esame preliminare delle domande fino alla firma del contratto)
- Gestione delle due foresterie dei Laboratori
- Gestione dei rapporti con le Autorità di Pubblica Sicurezza (segnalazione dei nominativi dei ricercatori stranieri presenti nelle foresterie; adempimenti necessari all'ottenimento del visto a seguito del rilascio del nullaosta e del permesso di soggiorno per gli stessi)

07/01/1998–30/06/2012 Impiegato presso l'Ufficio Concorsi, Borse di Studio, Utenti Esterni
Laboratori Nazionali di Frascati dell'INFN, Via Enrico Fermi, 40 – 00044
Frascati (RM) – Italia

Stesse mansioni di cui sopra in qualità di collaboratore del Responsabile.

01/03/1997–31/12/1997 Impiegato presso l'Elettrobiocchimica s.r.l.
Via Pietro Ottoboni, 110, 00159 - Roma

Responsabile approvvigionamento magazzino e gestione ordini clienti.
Preparazione documentazione per la partecipazione a gare e appalti

TITOLI DI STUDIO

2016 Master in Diritto del Lavoro e Gestione del Personale: CEIDA - Scuola Superiore di Amministrazione Pubblica e degli Enti Locali, Roma (60/60)
1992 Laurea in Scienze Politiche: Università "La Sapienza", Roma (108/110)
1985 Diploma di Maturità Scientifica: Liceo Talete, Roma (40/60)

QUALIFICHE PROFESSIONALI

gennaio - aprile 1995 Project Management per lo sviluppo di sistemi software basati su database relazionali: IAL CISL, Roma
maggio – ottobre 1994 Knowledge Manager (formazione delle risorse umane e gestione della conoscenza), borsa di studio post-laurea, Università di Bari

ATTESTATI DI PARTECIPAZIONE

Corsi INFN:

- Aggiornamenti normativi in materia di personale (Napoli, 2016)
- Aggiornamenti normativi e regolamenti riguardanti la materia del personale (Frascati, 2015)
- Dematerializzazione e gestione documentale: il viaggio verso il cambiamento (Frascati, 2015)
- Ingresso e soggiorno ricercatori stranieri (Pisa, 2015)
- Aggiornamenti normativi in materia di personale (Firenze, 2015)
- Aggiornamenti normativi in materia di personale (Frascati, 2013)
- Ingresso e soggiorno ricercatori stranieri (Pisa, 2012)
- GODIVA: il nuovo sistema di gestione ospiti, dipendenti, visitatori ed associati per le segreterie (Lecce, 2011)
- Partecipanti FileMaker Avanzato (Frascati, 2011)
- Corso su Joomla (Bologna, 2009)
- Procedure concorsuali e di reclutamento del personale nella P.A. (Roma, 2008)
- Incaricati del trattamento dei dati personali (Torino, 2004)
- Associazioni, Convenzioni, Ordinamento e Assicurazioni – Affari Internazionali – Trattamento di missione (Cagliari, 2003)
- La gestione del personale (Catania, 2003)
- Autocertificazione e diritto di accesso ai documenti (Frascati, 1999)
- Reti e applicazione di reti, World Wide Web Avanzato (Bari, 1998)
- Reti e applicazione di reti, World Wide Web (Roma, 1998)

Corso Istituto Europeo di Design:

- Pagemaster web (Roma, novembre 1995 - febbraio 1996).

Corsi ITA (Gruppo SOI):

- Le autocertificazioni e la semplificazione della documentazione amministrativa (Roma, 4 novembre 2005)
- Accesso ai documenti amministrativi dopo il T. U. in tema di privacy: risoluzione dei casi pratici (Milano, 25-26 settembre 2003)
- Giurisdizione e responsabilità nei concorsi pubblici (Roma, 3-4 ottobre 2002)

CORSI E DIPLOMI DI LINGUA

- Attestato del Corso di lingua francese del Centre Culturel Saint-Louis de France, corso avanzato (anno accademico 2005-2006);
- Attestato del Corso di lingua francese dell'Alliance Française, corso B2 II parte (anno accademico 2004-2005);
- Attestato del Corso di lingua francese dell'Alliance Française, corso B2 I parte (anno accademico 2003-2004);

- Diploma First Certificate in English (conseguito nel giugno 2001, grado B);
- Attestato del Corso di lingua inglese del British Institute: dal livello 4B al 5A (10/2000-05/2001);
- Attestato del Corso di lingua inglese del British Institute: dal livello 4A al 4B (11/1999-05/2000);
- Attestato del Corso di lingua inglese del British Institute: dal livello 3B al 4A (11/1998-06/1999).

Autorizzo il trattamento dei miei dati personali ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 "Codice in materia di protezione dei dati personali".

