

Roma, 20 maggio 2016

Verbale n° 3 del Consiglio Scientifico

PRESENTI: Prof. Andreani Carla (Coordinatore), Dott. Martinez Labarga Maria Cristina, Prof. Patella Fulvia, Prof. Rosato Nicola, Dott. Bottini Massimo, Prof. Rossi Antonello, Prof. Helmer Citterich Manuela, Prof. Venanzi Mariano, Prof. Stella Lorenzo, Prof. Senesi Roberto, Dott. Festa Giulia, Prof. Licoccia Silvia, Dott. Di Venere Almerinda, Prof. Picozza Pier Giorgio, Prof. Paniccia Paola Maria Anna, Prof. Schillaci Orazio, Dott. Billi Daniela, Prof. Bruno Laura, Dott. Gambacurta Alessandra, Prof. Rickards Olga, Prof. Desideri Alessandro, Prof. Di Bartolomeo Elisabetta, Dott. Di Epifanio Alessandra.

GIUSTIFICATI: Prof. Della Cananea Giacinto, Prof. Balestrino Giuseppe.

ASSENTI: Prof. Cardarilli Gian Carlo, Prof. Coccia Eugenio, Prof. Caccuri Anna Maria, Prof. Mei Giampiero, Prof. Canini Antonella, Prof. Coletta Massimo, Prof. Traversa Enrico, Prof. Savini Isabella, Prof. Ruggieri Marina, Dott. Congestri Roberta, Prof. Magrini Andrea, Prof. Marini Stefano, Prof. Giuseppe Sancesario, Prof. Paola Cozza.

Il Consiglio Scientifico del Centro NAST, si è riunito in modalità telematica, il giorno 20 maggio 2016 dalle ore 9:00 alle ore 18:00 con il seguente Ordine del Giorno:

- 1. Comunicazioni**
- 2. Convenzioni e accordi di ricerca**
- 3. Varie ed eventuali**

1. Comunicazioni

Nessuna comunicazione

2. Convenzioni e accordi di ricerca

Il Coordinatore porta in approvazione la bozza della Convenzione Quadro posta in essere tra l'Università degli Studi di Roma “Tor Vergata” - Centro NAST, il Centro FERMI, l'Università degli Studi di Milano Bicocca e la Fondazione Museo delle Antichità Egizie di Torino. Tale collaborazione di ricerca e didattico è finalizzata alle ricerche relative agli ambiti dell'egittologia, dell'orientalistica, della museologia e della comunicazione con attività di

didattica prioritariamente rivolte ai corsi di laurea e di laurea magistrale, ai dottorati e ai master il cui ambito di studio e ricerca coinvolga i settori scientifico-disciplinari pertinenti allo studio dell'Egitto e del Vicino Oriente antico, dalla preistoria all'età bizantina, unitamente alle discipline utili alla conservazione, promozione e comunicazione in ambito museale del patrimonio relativo a quelle civiltà (Allegato 1).

Il CS esprime all'unanimità parere favorevole.

3. Varie ed eventuali

3.1 Bando di Ateneo Professori Visitatori 2016

Il coordinatore informa che è pervenuta un'unica richiesta per il Bando di ateneo Professori Visitatori, presentata da parte del Prof. R. Senesi, che propone di invitare il Prof. Chun-Keung Loong: Distinguish Professor presso la Tsinghua University, Department of Engineering Physics, Beijing - China, per svolgere il progetto di ricerca e di didattica dal titolo "Novel Technologies Compact Accelerator-driven Neutron Sources for, Nuclear Safeguards, Security, and Nonproliferation" (Allegati 2- 3 - 4).

Il consiglio dopo ampia discussione e vista la validità dell'iniziativa approva all'unanimità la proposta del Prof. Senesi per il bando Professori Visitatori 2016.

Il presente verbale, redatto e approvato seduta stante e firmato dal Coordinatore del Centro NAST e dal Segretario, viene annotato e conservato in apposito registro.

La riunione termina alle ore 18:00

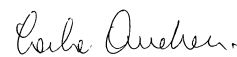
Il segretario

Dott. Barbara Gallenzi



Il Coordinatore

Prof. Carla Andreani





CONVENZIONE QUADRO

TRA

L'Università degli Studi di Roma "Tor Vergata" - **Centro interdipartimentale Nanoscienze & Nanotecnologie & Strumentazione (NAST)** (in prosieguo denominata Università Tor Vergata), avente sede in Via Orazio Raimondo, n. 18 - 00173 Roma (RM) partita IVA 02133971008 e codice Fiscale 80213750583, rappresentata dal Rettore Prof. Giuseppe Novelli, nato a Rossano (CS), il 27/02/1959.

E

Il Centro FERMI (in prosieguo denominato Centro Fermi), avente sede c/o Compendio del Viminale, Piazza del Viminale, n. 1 - 00184 Roma (RM), partita IVA o codice Fiscale 06431991006, rappresentata dal Presidente Prof. Luisa Cifarelli, nata a Roma, l'11/06/1952.

E

L'Università degli Studi di Milano Bicocca (in prosieguo denominata Università Bicocca), avente sede in Piazza dell'Ateneo Nuovo, 1 - 20126, Milano (MI), partita IVA 12621570154, rappresentata dal Rettore Prof. Cristina Messa, nata a Monza, l'08/10/1961.

E

La Fondazione Museo delle Antichità Egizie di Torino (in prosieguo denominata Fondazione), avente sede legale in via Accademia delle Scienze, n. 6 - 10123 Torino (TO), partita IVA 09269240017, rappresentata dal Direttore Dott. Christian Greco, nato ad Arzignano (VI), il 15/04/1975.

PREMESSO CHE

- Il Museo delle Antichità Egizie venne fondato nel 1824 dal re Carlo Felice con l'acquisizione di una collezione di 5628 reperti egizi riunita da Bernardino Drovetti;
- La Fondazione è stata costituita ufficialmente il 6 ottobre 2004 dal Ministero per i Beni e le Attività Culturali, che ha conferito in uso per trent'anni i propri beni, insieme con la Regione Piemonte, la Provincia di Torino, la Città di Torino, la Compagnia di San Paolo e la Fondazione CRT;
- La Fondazione rappresenta il primo esperimento di costituzione, da parte dello Stato, di uno strumento di gestione museale a partecipazione privata;
- La Fondazione si propone di accogliere gli standard internazionali dell'ICOM ripresi anche con decreto dal Ministero per i Beni e le Attività Culturali e di adottare come guida del suo operato verso il Museo Egizio la definizione ICOM di museo:
Il museo è un'istituzione permanente, senza scopo di lucro, al servizio della società e del suo sviluppo. È aperto al pubblico e compie ricerche che riguardano le testimonianze materiali e immateriali dell'umanità e del suo ambiente; le acquisisce, le conserva, le comunica e, soprattutto, le espone a fini di studio, educazione e diletto* ([ICOM Statutes art. 2 §1](#));
- Il Centro Fermi e le Università degli Studi di Milano-Bicocca e Roma Tor Vergata svolgono attività di ricerca e formazione nel settore dei Beni Culturali con particolare

riferimento allo studio di reperti materiali d'interesse storico artistico mediante una varietà di tecniche analitiche tra cui quelle disponibili presso infrastrutture di ricerca di neutroni e luce di sincrotrone;

CONVENGONO

Articolo 1 – Finalità

L'Università "Tor Vergata", il Centro Fermi, l'Università Bicocca e la Fondazione intendono avviare una collaborazione didattico - scientifica, finalizzata all'approfondimento di tematiche relative agli ambiti dell'egittologia, dell'orientalistica, della museologia e della comunicazione. La collaborazione sarà rivolta prioritariamente ai corsi di laurea e di laurea magistrale, ai dottorati e ai master il cui ambito di studio e ricerca coinvolga i settori scientifico-disciplinari pertinenti allo studio dell'Egitto e del Vicino Oriente antico, dalla preistoria all'età bizantina, unitamente alle discipline utili alla conservazione, promozione e comunicazione in ambito museale del patrimonio relativo a quelle civiltà.

Articolo 2 – Iniziative

Nello specifico, la collaborazione si sostanzierà nelle seguenti potenziali linee di intervento:

1. definizione di specifici percorsi formativi nell'ambito dei corsi di laurea e laurea magistrale orientati alla formazione specialistica nei macro ambiti indicati;
2. attivazione di master focalizzati sulle tematiche di comune interesse;
3. stipula di convenzioni per lo svolgimento di tirocini formativi e di orientamento;
4. ricerche di dottorato, negli ambiti indicati, finalizzate allo studio e alla pubblicazione di materiale del Museo Egizio di Torino. A questo proposito, la Fondazione valuterà la possibilità di assumere annualmente gli oneri connessi al finanziamento di borse di studio per la frequenza a corsi di dottorato delle Università, della durata di tre anni, da assegnarsi a uno dei candidati utilmente collocati nella graduatoria di merito del concorso per l'ammissione al relativo dottorato. Tale finanziamento sarà perfezionato mediante lettera d'impegno nella quale saranno definiti il numero delle borse, gli eventuali temi di ricerca, i corsi di dottorato interessati, nonché tutti gli altri elementi ritenuti utili al finanziamento. Il tutore/supervisore del progetto di ricerca di ciascun allievo sarà scelto di comune accordo dal Coordinatore del Corso di Dottorato e dal Direttore della Fondazione fra il personale delle Università, del Centro Fermi e/o delle Fondazione. Il tutore/supervisore a sua volta concorderà con il Direttore della Fondazione il relativo progetto di ricerca di ciascun allievo beneficiario della borsa. Al fine di sviluppare l'attività di ricerca, l'assegnatario della borsa di studio potrà utilizzare le strutture della Fondazione nei limiti e con le modalità con questo concordate. Tale possibilità potrà essere estesa agli altri iscritti al corso previo accordo con la Fondazione. Uno o più rappresentanti della Fondazione potranno far parte del Collegio dei docenti del corso di dottorato in qualità di esperti non universitari di comprovata qualificazione nei limiti e con le modalità stabilite dal Regolamento di Ateneo in materia. La Fondazione potrà anche designare uno dei propri rappresentanti a partecipare alla Commissione di Concorso in qualità di esperto, in accordo con il Consiglio di Dottorato;
5. organizzazione di cicli di conferenze, di giornate di studio e di seminari;
6. individuazione ed elaborazione di nuovi progetti didattici e di ricerca;

7. promozione di iniziative di scavo archeologico congiunte;
8. organizzazione di mostre congiunte o eventuali accordi di scambio per mostre fatte da una sola delle due parti;
9. facilitazione di scambi culturali tra personale delle istituzioni;
10. fund raising presso istituti pubblici e privati finalizzato all'offerta di borse di studio e ricerca per studenti e giovani ricercatori;
11. pubblicizzazione delle iniziative promosse congiuntamente anche tramite i siti istituzionali.

Articolo 3 - Tirocini

Le Istituzioni si impegnano in particolare a promuovere la possibilità di stage per i propri studenti presso la Fondazione e a riconoscere crediti formativi agli studenti che partecipano ai tirocini e alle attività di carattere archeologico promosse congiuntamente dai quattro convenienti, opportunamente documentati e previa approvazione dei consigli di corso di studio interessati.

Articolo 4 - Referenti

Ai fini dell'attuazione della presente convenzione, le parti nominano quali referenti la Prof.ssa Carla Andreani per l'Università degli Studi di Roma Tor Vergata, la Prof.ssa _____ per l'Università degli Studi di Milano Bicocca, la Prof.ssa _____ per il Centro Fermi ed il Dott. Christian Greco per la Fondazione.

Articolo 5 - Eventuali controversie

Le Parti si impegnano a comporre amichevolmente ogni eventuale controversia che dovesse sorgere relativamente all'interpretazione ed esecuzione della convenzione, prima di iniziare qualsiasi procedimento giudiziale.

Fermo restando quanto previsto al comma precedente, per qualsiasi controversia dovesse insorgere fra le Parti relativamente all'interpretazione ed esecuzione della convenzione sarà competente in via esclusiva il Foro di Roma.

Articolo 6 – Risultati della ricerca

I risultati della ricerca e degli studi svolti in collaborazione secondo lo spirito della presente intesa avranno carattere riservato e potranno essere divulgati ed utilizzati da ciascuna Parte, in tutto o in parte, con precisa menzione della collaborazione oggetto della presente intesa e previo assenso dell'altra Parte.

Qualora una delle Parti intenda pubblicare su riviste nazionali ed internazionali i risultati delle ricerche in oggetto o esporli o farne uso in occasione di congressi, convegni, seminari o simili, concorderanno i termini ed i modi delle pubblicazioni e, comunque, saranno tenute a citare l'intesa nell'ambito della quale è stato svolto il lavoro di ricerca.

E' consentito a ciascuna delle Parti di utilizzare, esclusivamente per uso interno, documenti, cognizioni e quant'altro scaturisca dalle attività oggetto del presente accordo.

Articolo 7 - Durata

La presente convenzione decorre dalla data di stipula e ha durata di tre anni.



Ciascuna Parte ha facoltà di recedere mediante comunicazione scritta inviata almeno tre mesi prima della scadenza. Le attività di ricerca avviate prima della data dell'effettivo recesso dovranno essere portate completamente a termine.

Articolo 8 – Bollo e registrazione

Il presente atto, redatto in quadruplica copia, è soggetto a registrazione in caso d'uso ai sensi degli articoli 5, 6 e 39 del D.P.R. n. 131 del 26 aprile 1986. Le spese di bollo sono a carico della Fondazione e del Centro Fermi.

Le spese per l'eventuale registrazione sono a carico della Parte richiedente.

Torino ,

Per l'Università degli Studi
di Roma Tor Vergata
Prof. Giuseppe Novelli

Per la Fondazione Museo delle
Antichità Egizie di Torino
Dott. Christian Greco

Per l'Università degli Studi
di Milano Bicocca
Prof. Cristina Messa

Per il Centro Fermi
Prof. Luisa Cifarelli



Università degli Studi di Roma Tor Vergata

**Centro NAST – Centro Interdipartimentale Nanoscienze,
Nanotecnologie Strumentazione Avanzata**

**PROFESSORI VISITATORI ATENEO
SCHEMA PER LA RICHIESTA DI UN CONTRIBUTO 2016**

SCADENZA: 25 MAGGIO

(Consiglio di Dipartimento 26 Maggio 2016)

Responsabile Scientifico – docente proponente presso il Dipartimento

Nome e Cognome: Prof. Roberto Senesi

PROFESSORE VISITATORE (si allega il curriculum vitae)

Nome e Cognome: Prof. Chun-Keung Loong

Qualifica Scientifica: Distinguish Professor

Università/Istituzione Accademica: Tsinghua University, Department of Engineering Physics,

Città: Beijing, Nazione: China

Attività da affidare (Descrizione e tipologia):

Visiting Professor

DIDATTICA (totale 6 CFU, 48 ore)

Insegnamenti:

a) Laurea magistrale in **Fisica**, modulo di *Neutron Instrumentation and Compact Neutron Sources* nell'ambito del corso di *Fisica del Neutrone e Applicazioni* (titolare Prof. Carla Andreani), secondo semestre: per un totale di 16 ore di lezioni frontali (2 CFU).

b) Dottorato di ricerca in **Fisica** lezioni, corso di Linee di fascio di neutroni per lo studio della materia, per un totale di 16 ore di lezioni frontali (2 CFU).

c) Dottorato di ricerca in **Materials for Health, Environment and Energy** e in **Scienze Chimiche** lezioni e moduli su Elementi di applicazioni di QENS all'indagine di Carboidrati, sistemi ionici, metallici e ossidi e Diffrazione di Neutroni, 16 ore di lezioni frontali (2 CFU)

Ore di docenza totali: 48 ore

Periodo di permanenza (non inferiore a 3 mesi): 3 mesi

Totale mesi: 3 mesi

Roma, 16 Maggio 2016

Il Proponente

Roberto Senesi

Chun-Keung Loong

1480 Broadway, Unit 2412
San Diego, CA 92101, USA
Tel: +1-619-7017736
E-mail: ckloong@gmail.com

Personal Data: Born: April 17, 1950 in Hong Kong; Married to Rosa Wong
Nationality: USA
Education: Ph.D. in Physics, Iowa State University, Ames, IA (1980)
B. S. in Physics and Mathematics, Iowa State University (1974)

Employment History:

Distinguish Professor, Department of Engineering Physics, Tsinghua University,
Beijing, China (2016-present)
Professor, School of Physics and Engineering, Sun Yat-Sen University, Guangzhou, China (2008-
April, 2013)
Professor & Lead Scientist, Department of Engineering Physics, Tsinghua University, Beijing,
China (2009-March, 2012)
Senior Physicist, IPNS-ANL (1997- Feb 2007)
Group Leader of the IPNS Scattering Group (1994-1999)
Assistant Physicist (1982-1985), Physicist (1986-1996), IPNS-ANL
Postdoctoral Fellow, Ames Lab. & Physics Dep., Iowa State U. (1980-82)

May, 2013-present:

Book author: J. M. Carpenter and C.-K. Loong, “Elements of Slow-Neutron Scattering”, A textbook,
Cambridge University Press 2015.

Book author: C.-K. Loong, “宇宙的尺度變異定律, The Mathematical Foundation of Scale Invariance and
Universality of Physical Laws”, Hong Kong Education Bureau, 2016. (Popular Science Series, in Chinese).

Book editor: “Nanomaterials for Energy Applications”, Editor: C.-K. Loong, Vol. III of the “Handbook of
Characterization and Properties of Nanostructured Materials”, Editor-in-chief: S. K. Sinha, World Scientific
Publishing Co./Imperial College Press, 2016.

Book editor: “Compact Accelerator Driven Neutron Sources: Physics, Technology and Applications”,
Editors: D. V. Baxter, M. Furusaka, and C.-K. Loong, Springer, 2016.

Advisor: Serve as an member of the International Review Committee for the China Spallation Neutron
Source (CSNS), 2012, 2013, 2014, 2015.

Lecturer: International Neutron Scattering Instrumentation School (INSIS), INFN-Laboratori Nazionali di
Frascati, Rome, Italy. July, 2012.

Lecturer: XII School of Neutron Scattering Francesco Paolo Ricci, Erice, Sicily, 30, April–9, May 2014.

Lecturer: XIII School of Neutron Scattering Francesco Paolo Ricci, Erice, Sicily, 28 July–4, August 2015.

Lecturer: IX School of Neutron Scattering Francesco Paolo Ricci, Erice, Sicily, 1-9 April 2016.

Consultant: On boron neutron capture therapy and other applications based on compact neutron generators,
for Neopanora Hong Kong Research and Development Centre Ltd, Hong Kong, China. (2014)

Awards and Recognition:

- (2003) Award of the Outstanding Papers published in the Journal of Ceramic Society of Japan in 2002
(co-winners: Y. Idemoto, N. Koura, J. W. Richardson, Jr. & K. Takeuchi)
- (2002) University of Chicago Award for Distinguished Performance at Argonne National Laboratory
- (1999) Fellow of American Physical Society (1999-)
- (1999) Japan Society for the Promotion of Science Invitation Fellowship for Research
- (1996) Pacesetter Award, Argonne National Laboratory

- (1994-1996 & 1985-1988)) NATO Collaborative Research Grant for International Scientific Exchange Programs (with M. Loewenhaupt, Jülich & Dresden, Germany)
- (1984) Pacesetter Award, Argonne National Laboratory
- (1980) G. W. Fox Memorial Award for Outstanding Research, Physics Department, Iowa State University

Visits:

- (2016) Visiting Professor, Department of Physics & Astronomy, University of Padova, Padova, Italy and Laboratori Nazionali di Legnaro, Italy.
- (2013) Visiting Scientist, University of Rome Tor Vergata, Rome, Italy
- (2007-) Adjunct Professor, Physics Department, Chinese University of Hong Kong, Hong Kong, China
- (2007-) Guest Professor, Department of Chemistry, Peking University, Beijing, China
- (2006-) Guest professor, Physics Department, Jinan University, Guangzhou, Guangdong, China
- (2006-) Visiting scientist and senior scientific advisor, Target Station and Instrumentation Laboratory for the Chinese Spallation Neutron Source Project, Institute of Physics, Chinese Academy of Sciences (CAS), Beijing, China
- (2006) Visiting senior scientist, Neutron Scattering Laboratory (NSL) of the China Advanced Research Reactor (CARR), China Institute of Atomic Energy (CIAE), Beijing, China. Chair of the International Advisory Committee for NSL-CARR.
- (04-06) Guest Professor, High Energy Accelerator Research Organization (KEK), Tsukuba, Japan
- (2004) Visiting professor, Centre de Recherche sur la Matière Divisée (CRMD) and Université d'Orléans in Orleans, France
- (2003) Visiting professor, Federal University of Ceará, Fortaleza, Brazil
- (2000) Visiting professor, Niigata University, Niigata, Japan
- (1994) Visiting professor, Science University of Tokyo, Noda, Japan
- (1986 & 1998) Visiting researcher/Professor, KEK, Tsukuba, Japan

Accomplishments/Service:

IPNS is the first spallation neutron source in the US and is the most cost-effective neutron user facility within the US Department of Energy (DOE) system. Arguably, the advent of the Spallation Neutron Source (SNS) – a \$1.4B project under commissioning at Oak Ridge National Lab in Tennessee – is by and large due to the success of IPNS and the European counterpart, the ISIS facility in the UK.

The Neutron Scattering Group bears the responsibility of the neutron science sector of IPNS. It comprises about 10 staff scientists and a handful of postdoctoral associates. I was the Group Leader in 1994-1999. In general, each staff scientist is responsible for the operation/improvement, user service, and scientific production of one neutron beamline. Currently I am in charge of the QuasiElastic Scattering Neutron Spectrometer (QENS) and previously the beamlines of two chopper spectrometers. I have interacted with many neutron users at IPNS and other facilities.

Additionally, a staff scientist typically affords a ~50% effort level for his/her “own science”. Using neutrons, x-rays, and visible lights at Argonne and elsewhere as the main experimental tools, I have maintained a sustainable collaborative research program. Currently active projects, each of which has a strong component of collaboration with university groups in the Americas, Asia and Europe especially concerning material synthesis and theoretical interpretation, include:

- *Nanostructured carbon and oxides as a medium for nanoscale confinement of molecules and hydrogen storage*
- *Structure-function relationship of hydroxyl species in bone and other minerals*
- *Nanostructured complex oxides as catalysts, ionic conductors, and ultra-efficient adsorbents*
- *Thermodynamic and applied properties of oxide, nitride, and carbide ceramics*
- *Ferroelectric random access memory devices and giant magnetoresistance magnetic multilayers*

I published papers in a variety of journals for basic research, many of which are oriented to technological applications. As an author and a referee, I am familiar with the peer review process for international journals, grant proposals to DOE, NSF, NIH, NATO and Marie-Curie International Program under the EU.

Ph.D Students:

- (2009-2012) Mr. Bin Zhong, Department of Engineering Physics, Tsinghua University, Beijing, China
- (2009-2012) Mr. Qixi Feng, Xian Jiaotong University, Xian, China
- (2005-2006) Ms. Li Liu, Department of Nuclear Engineering, MIT, MA
- (2008) Mr. Ping Miao and Jiajie Yu, Depart. Physics, Sun Yat-Sen University, Guangzhou, China
- (2003-2005) Mr. Vincent Leon, Chemistry Department, University of Orleans, France
- (2003) Ms. Cindy Rountree, Physics & Computer Science Departments, Louisiana State University, Baton Rouge, LA
- (1998-2000) Mr. Xiaohe Li, Department of Chemical Engineering. University of Louisville, KY
- (2000) Ms. Yukiko Hirano, Physics Department, Keio University, Yokoyama, Japan
- (1999-2000) Mr. Alok Chatterjee, Physics & Computer Science Departments, Louisiana State University, Baton Rouge, LA
- (1994-1996) Mr. Joseph Nipko, Physics Department, Colorado State University, Fort Collins, CO
- (1994) Mr. Ken Takeuchi, Department of Pure & Applied Chemistry, Tokyo University of Science, Japan
- (1994) Mr. Koichi, Ui, Department of Pure & Applied Chemistry, Tokyo University of Science, Japan
- (1990-1992) Mr. Xunli Wong, Physics Department, Iowa State University, Ames, IA
- (1985-1987) Ms. Mary Vrtis, Physics Department, Northwestern University, Evanston, IL

Recent Outside Collaborators:

1. (2007-) Dr. A. I. Kolesnikov, SNS, Oak Ridge National Laboratory, Oak Ridge, USA
2. (2008-) Profs. C. Andreani & R. Senesi, Department of Physics, University of Rome Tor Vergata
3. (1998-) Prof. J. Lin, College of Chemistry and Molecular Engineering, Peking University, Beijing, China – *crystal chemistry of functional inorganic materials*
4. (1998-) Profs. J. Y. Wang and X. Hu, Institute of Crystal Materials, Shandong University, Jinan, Shandong, China – *nonlinear optics and laser materials*
5. (2006-) Prof. F. W. Wang, Institute of Physics, Chinese Academy of Sciences, Beijing, China – *magnetic materials*
6. (2000-) Prof. D. Chen, Department of Nuclear Physics, Neutron Scattering Laboratory, China Institute of Atomic Energy, Beijing, China – *neutron scattering instrumentation and software development*
7. (1996-) Drs. R. Mittal, S. L. Chaplot, and N. Choudhury, Solid State Physics Division, Bhabha Atomic Research Center, Trombay, Mumbai, India – *lattice dynamics and thermodynamics of minerals*
8. (2004-) Dr. I. O. Bashkin, Institute of Solid State Physics RAS, 142432 Chernogolovka, Moscow District, Russia – *hydrogenated carbon nanotubes*
9. (2003-) Drs. A. P. Morvasky and R. O. Loutfy, MER Corporation, Tucson, AZ – *nanocarbons*
10. (2003-) Dr. C. J. Burnham, Physics Department, University of Houston, TX – *nanotube-water simulations*
11. (1999-) Drs. M. J. Glimcher, Y. Wu, and L. Graham, Laboratory for the Study of Skeletal Disorders and Rehabilitation, Department of Orthopaedic Surgery, Harvard Medical School, Children's Hospital, Boston, MA – *bone minerals*
12. (1999-) Dr. C. Rey, Laboratoire Interfaces et Matériaux-Physico-Chimie des Phosphates, INP-ENSCT-UPRESA, Toulouse, France - *bioceramics*
13. (1981-) Prof. S.-H. Chen, Department of Nuclear Engineering, MIT, MA – *hydrogen-bond systems, hydrogen storage, protein dynamics*
14. (2000-) Dr. H. Koyanaka, Department of Chemistry, Kyoto University, Japan – *nanosstructure*

manganese oxide adsorbents

15. (1994-) Prof. N. Koura and Drs. K. Takeuchi and K. Ui, Department of Pure & Applied Chemistry, Tokyo University of Science, Japan – *hydrogen fuel cells & proton conductors*
16. (1998-) Drs. J. K. R. Weber and J. A. Tangeman, Containerless Research Inc., Evanston, IL – *novel glasses and optical materials*
17. (1998-) Dr. S. Kohara, Japan Synchrotron Radiation Institute, Hyogo, Japan – *novel glasses and nanophase ceramics*
18. (1990-) Dr. L. A. Boatner, Solid State Division, Oak Ridge National Laboratory – *optical materials*
19. (1994-) Dr. M. Ozawa, Ceramic Research Laboratory, Nagoya Institute of Technology, Japan – *automobile three-way catalysts*
20. (1987-) Profs. R. Kalia, A. Nakano, and P. Vashishta, Departments of Physics, Materials Science and Computer Science, University of Southern California, Los Angeles, CA – *multiscale simulations of nanomaterials*
21. (2005-) Prof. X. Han, Institute of Physics, Chinese Academy of Sciences, Beijing, China – *GMR magnetic multilayer spin-valve devices*
22. (1997-) Prof. Y. Idemoto, Department of Pure & Applied Chemistry, Tokyo University of Science, Japan – *ferroelectric random access memory devices*
23. (1999-) Prof. M. Winterer, Department of Engineering Sciences, University of Duisburg-Essen, Germany – *Nanophase ceramics*
24. (2000-) Profs. I. Guedes and A. P. Ayala, Department of Physics, Federal University of Ceará, Fortaleza, Brazil – *Raman studies of optical materials*

Administrative Experience:

During the period of 1994-1999 while I was the group leader of the IPNS Scattering Group, I oversaw ~10 staff scientists and their postdocs, taking care of the Group's business such as budget, planning of instrument upgrade and capital equipment investment, reviews, new hires, and performance appraisal/promotion.

Organization of Meetings

- Workshop on Neutron Science and Technology R&D, April 22-23, 2013, Zhuhai, China.
- The First Meeting of the Union of Compact Accelerator-driven Neutron Sources, August 15-18, 2010, Beijing, China.
- International Workshop on Education and Research for Nuclear and Neutron Science and Technology, (Co-organized S.-H. Chen) Nov 6-7, 2008, Zhuhai, China.
- The Second US-China Workshop on Scientific and Industrial Applications Using Neutrons, Muons and Protons, (Co-organized with S.-H. Chen, J. Wei & D. Chen) Nov 7-9, 2008, Dongguan, China.
- International Meeting on Neutrons and Grand Challenges of Nanoscience, Energy Research, and Computation, (Co-organized with Y. Li, D. Chen, and S.-H. Chen) Nov 16-18, 2006, Xian, China.
- The First US-China Workshop on Neutron Scattering Science and Technology, (Co-organized with S.-H. Chen, Z. Zhao, and J. Zhang) Nov 12-15, 2006, Beijing, China.
- The Third CSNS Workshop on Applications of Spallation Neutron Source, July 31-Aug 2, 2006, The Institute of Physics, Chinese Academy of Sciences, Beijing, China.
- The Second BSNS Workshop on Applications of Spallation Neutron Source, July 27-29, 2005, The Institute of Physics, Chinese Academy of Sciences, Beijing, China.
- The First Workshop on Applications of Spallation Neutron Source, August 3-6, 2004, The Institute of Physics, Chinese Academy of Sciences, Beijing, China.
- International Conference on Dynamics of Disordered Materials on the Nanometer Scale, (Co-organized with D. Price, M. Arai, R. Kalia) February 22-27, 2004, Hanoi, Vietnam.

- DOE Basic Energy Sciences Advisory Committee Subpanel Workshop: Opportunities for Catalysis in the 21st Century, Gaithersburg, MD, May 14-16, 2002 (Chaired Breakout Session on National Facilities – Phonons, Neutrons, and End Stations).
- International Workshop on Nanocomposites: Materials, Neutrons, and Data Interpretation, (Co-organized with J. W. Richardson, Jr., and P. Thiyagarajan) March 28-30, 2002, Argonne National Laboratory.
- The First Moderator-Target Planning Meeting for the Chinese Spallation Neutron Source (CSNS) Project, April 21-26, 2002, The Institute of Physics, Chinese Academy of Sciences, Beijing, China.
- Workshop on "Liquids, Glasses and Amorphous Materials for the Long-Wavelength Target Station of the Spallation Neutron Source", University of Delaware, April 28-29, 2000 (Co-organized with H. Glyde).
- Workshop on "Novel Materials for Extreme Environments: New Experimental Opportunities in Neutron Scattering", Argonne National Laboratory, September 11-12, 1998.
- International Workshop on "Materials Research Using Cold Neutrons at Pulsed Sources", Argonne National Laboratory, August 25 - 26, 1997.

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Refereed journal articles (205)
Conference Proceedings (46)
Book Contributions (6)
Edited Book (1)
Books (2)

Invited Talks (110)

Edited Book:

1. Materials Research Using Cold Neutrons at Pulsed Sources (World Scientific, Singapore, 1999) Ed. by P. Thiyagarajan, F. Trouw, M. A. Marzec, and C.-K. Loong.

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1. *Scattering Techniques: Small- and Wide-Angle Neutron Diffraction*, C.-K. Loong, A. Scherillo, and G. Festa, in Neutron Methods for Archeology and Cultural Heritage Ed. N. Kardjilov and G. Festa, Chapter 3, (Springer, 2016).
2. *Raman Scattering in Rare-earth Orthophosphates*, in Rare Earths: Research and Applications Ed. K. N. Deifrey, p.375-390 (Nova Sciences, 2008).
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24. The phonon densities of states of AlN and ZrN ,
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29. Atomic Structure and dynamics of fast-ion conducting glasses,
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Invited Talks:

Recent invited Talks:

1. “Boron neutron capture therapy (BNCT): An application over a landscape of future high-performance compact accelerator-driven neutron sources (CANS)”, LLB Workshop on New Opportunities in Neutron Scattering: Small to Medium Sources and Their Applications, May 18-19, 2015, Paris, France.
2. “Neutron studies of water: From nanoscale-confinement to supercriticality”, Department of Physics, University of California at San Diego, USA, April 3, 2013.
3. “Neutron studies of water: From nanoscale-confinement to supercriticality”, University of Duisburg-Essen, Germany, Aug 15, 2012.
4. “Application of small neutron sources for research and development at universities”, Heavy Ion Accelerator Laboratory, Peking University, May 22, 2012.
5. “Neutron-source development in China: A view from the vantage point of university users”, The First Asia-Oceania Conference on Neutron Scattering, Tsukuba, Japan, Nov 20-24, 2011.
6. “Neutron studies of crystalline and amorphous alloys: What neutron scattering can do and what we may start now?”, Department of Mechanical Engineering, Tsinghua University, Jan 12, 2012.
7. Two lectures on “Modern neutron sources for materials research” and “Neutron studies of soft condensed matter”, Department of Materials Science & Engineering, University of Science and Technology of China, Hefei, China, Sept 14-15, 2011.
8. “Neutron scattering: The method and related development in China”, Department of Bioengineering, University of California at Los Angeles, June 1, 2010.
9. “Lectures on principles and methodology of powder & single-crystal diffraction”, Beijing Summer School on Crystallography, Crystal Engineering and Functional Materials, July 12-26, 2009, Beijing University, Beijing, China.
10. “Modern neutron/proton sources in Beijing and Dongguan: Opportunities of scientific and technological collaboration between universities and facility”, Physics Department, Hong Kong University, Jun 22, 2009.
11. “The Future of Neutron Scattering in China: Meeting Increasing Demand with New Facilities?”, International Conference on Neutron Scattering, Knoxville, TN, 3-7 May 2009.
12. “Hadron (neutron, proton,...) projects in China: Recent Development”, Spallation Neutron Source, Oak Ridge National Laboratory, April 30, 2009.
13. “The neutron scattering community in China”, The 2nd Executive Committee Meeting of the Asia-Oceania Neutron Scattering Association, Yi-Lan, Taiwan, China, Feb 23-24, 2009.
14. “Neutron methodology and data interpretation”, Physics Department, University of Southern California, April 16, 2009.
15. “Future direction of materials science”, Asia Science Seminar: Frontier Science at High-Intensity Proton Accelerators, Oct 19-25, 2008, Beijing, China.
16. “Neutron scattering: Its methodology, applications and impact on university research”, Physics Department, Chinese University of Hong Kong, Hong Kong, China, March 16, 2007.
17. “Inelastic neutron scattering and applications” A Short Course on Neutron Scattering in Earth Sciences sponsored by Department of Energy, Emeryville, CA, Dec 7-8, 2006.
18. Two lectures on “Neutron sources and general instrumentation” and “Quasielastic scattering: Diffusion and relaxations”, The First US-China Workshop on Neutron Scattering Science and Technology, Beijing, China, Nov 12-15, 2006.
19. “Neutron scattering method and scientific applications”, Sun Yet-sen University, Zhuhai Campus, Zhuhai, Guangdong, China, Oct 22, 2006.
20. “The frontier of neutron science and technology: A provocative assessment”, The 281st XiangShan Meeting on Intersection of Scientific Frontier of Synchrotron Radiation and Neutron Scattering Research, Beijing, China, August 3, 2006, 2006.
21. “Material characterization using neutrons and the impact of a neutron user facility on university research”,

- Department of Materials Science and Engineering, Shenzhen, Guangdong, China, Oct 17, 2006.
22. "Neutron scattering in the 21st century: Big facilities versus small sciences", Department of Physics, Beijing, China, May 24, 2006, 2006.
 23. "Neutron studies of advanced materials: From high-Tc superconductors to ferroelectric complex oxides", College of Chemistry, Peking University, Beijing, China, July 6, 2006, 2006.
 24. "Neutron scattering method and scientific applications: University utilization of national facilities", School of Science and Engineering, Jinan University, Guangzhou, Guangdong, China, Oct 23, 2006.
 25. "Neutron scattering: An experimental method for physicists and beyond", Institute of Physics, The Chinese Academy of Sciences, Beijing, China, May 25, 2006, 2006.
 26. "Synergetic roles between regional universities, local government and the Chinese Spallation Neutron Source", A Region Meeting for Guangdong Universities on the Chinese Spallation Neutron Source Project, Zhuhai, Guangdong, China, Oct 21-22, 2006.
 27. "Neutron studies of rare earth-modified zirconia catalysts and yttrium-doped barium cerate proton-conducting ceramic membranes", Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing, China, June 29, 2006, 2006.
 28. "Neutronic consideration of pulsed-source scattering instruments", The 3rd CCAST Working on Applications of spallation neutron sources, Beijing, China, August 1, 2006, 2006.
 29. Ten-hour lecture series on "The Neutron, Neutron Sources, Scattering from atoms, Diffraction, small-angle scattering and reflectivity studies, inelastic scattering", Graduate School, Beijing, Chinese Academy of Sciences, Beijing, China, June 28 - July 5, 2006, 2006.

Prior Invited Talks:

1. "Confined water and adsorbed hydrogen in nanostructures: A neutron-scattering study and its relevancy to bionanotechnology", Department of Physics and Astronomy, University of Southern California, Los Angeles, USA, Jan. 31, 2005, 2005.
2. "Anomalous soft dynamics in nanotube-water: A revelation of nanoscale confinement", Department of Pure and Applied Chemistry, Tokyo University of Science (TUS), Noda, Japan, Nov. 5, 2004, 2004.
3. "Neutron-scattering characterization of nanostructured materials: From carbon nanotubes to oxide adsorbents", Centre Inter universitaire de Recherche et d'Ingénierie des MATériaux, ENSIACET, Toulouse, France, April 29, 2004, 2004.
4. "Recent progress in neutron studies of rare earths containing catalyst and proton-conducting ceramic membranes", International Conference on Rare Earths - 2004, Nara, Japan, Nov 7-12., Nara, Japan, Nov. 11, 2004, 2004.
5. "Confinement of water and adsorption of hydrogen in carbon nanotubes: Relevancy to bionanotechnology and hydrogen economy", The Neutron Science Research Center (NSRC) of Japanese Atomic Energy Research Institute (JAERI), Tokai, Japan, Nov. 4, 2004, 2004.
6. "Anomalous soft dynamics in nanotube-water: A revelation of nanoscale confinement", Laboratoire Léon Brillouin, CEA/Saclay, France, May 4, 2004, 2004.
7. "IPNS as of 2004 - Recent upgrade and future plans", The Neutron Science Laboratory (KENS) of the High Energy Accelerator Research Organization (KEK), Tsukuba, Japan, Nov. 2, 2004, 2004.
8. "Neutron-scattering characterization of nanostructured materials relevant to nanobiotechnology", IEEE Conference on Nanoscale Devices and System Integration, Miami, FL, February 15-19, 2004, 2004.
9. "Applications of neutron scattering for industrial problems: Facilities serving the interests of universities, government laboratories and private industries", Festschrift for the 30th Anniversary of the Hokkaido Linac, Hokkaido University, Sapporo, Japan, March 8, 2004, 2004.
10. "Anomalous soft dynamics in nanotube-water: A revelation of nanoscale Confinement", International Conference on Dynamics of Disordered Materials on the Nanometer Scale, Hanoi, Vietnam, February 22-27, 2004, 2004.
11. "Nanoscale characterization of biomedical materials using neutron scattering", Department of Biomedical Engineering, Florida International University, Miami, FL, February 16, 2004, 2004.

12. "Interfacial structure and interdiffusion: Neutron reflectivity studies", CCAST Workshop on Applications of Spallation Neutron Sources, Beijing, China, August 3-6, 2004, 2004.
13. "Phonons in crystalline and amorphous materials", CCAST Workshop on Applications of Spallation Neutron Sources, Beijing, China, August 3-6, 2004, 2004.
14. "The role of neutrons amid emerging scientific initiatives and grand challenges", CCAST Workshop on Applications of Spallation Neutron Sources, Beijing, China, August 3-6, 2004, 2004.
15. "Anomalously soft dynamics in nanotube-water: A revelation of nanoscale confinement", Centre de Recherche sur la Matière Divisée, Orléans, France, May 11, 2004, 2004.
16. "Neutron-scattering characterization of defects and atomic structures in wide bandgap semiconductors", ONR Workshop on Defect Characterization Techniques in Wide Gap Semiconductors, Maui, Hawaii, March 16-20, 2003, 2003.
17. "Neutron-scattering studies of phonons in solids: Examples", NICEST-JINS Workshop, Oak Ridge, TN, March 12-16, 2003, 2003.
18. "Phonons: Neutron spectroscopic studies and relation with macroscopic material properties", NICEST-JINS Workshop, Oak Ridge, TN, March 12-16, 2003, 2003.
19. "Mass-fractal-like microstructure and proton disorder innanostructured pseudoboehmite: A neutron-scattering study", International Symposium on Materials Processing for Nanostructured Devices, Nouan le Fuselier, France, May 4-7, 2003, 2003.
20. "Probing nanoscale structures and dynamics with neutron and hard x-rays: Present capabilities and future challenges", Conference on Frontiers of Grid Computing & Simulation on Nano-Bio Interface, Baton Rouge, LA, Feb 27-Mar 1, 2003.
21. "The QuasiElastic Neutron Spectrometer (QENS) of IPNS: Recent upgrade and performance", The 16th Meeting of the International Collaboration on Advanced Neutron Sources, ICANS - XVI, Düsseldorf-Neuss Germany, May 12-15, 2003, 2003.
22. "Proton conduction in yttrium-doped barium cerate (YBC) ceramic membranes", Eindhoven University of Technology, Eindhoven, The Netherlands, May 1, 2003, 2003.
23. "Crystal fields, magnetostriction and electron-phonon coupling: A case study of rare-earth orthophosphates", Department of Physics, Technical University of Dresden, Dresden, Germany, April 22, 2003, 2003.
24. "Neutron-scattering studies of microstructure and residual strains: A case study of rare-earth modified zirconia", DLR German Aerospace Center, Cologne, Germany, May 16, 2003, 2003.
25. "Industrial uses of neutron scattering", X-ray and Neutron School, 2002, Argonne National Laboratory, Argonne, IL USA, August 23, 2002, 2002.
26. "Neutron-scattering studies of advanced materials: From automobile catalysts to bone minerals", Department of Industrial Chemistry, Tokyo University of Science, Noda, Chiba, Japan, Oct 30, 2002.
27. "Proton conduction in yttrium-doped barium cerate (YBC) ceramic membranes", Experimental Research Division, Japan Synchrotron Radiation Research Institute - SPring8, Hyogo, Nov 5, 2002.
28. "Neutron-scattering characterization of nanostructured materials, from automotive catalysts to bone substances", Department of Materials Science and Physics, City University of Hong Kong, Hong Kong, China, Nov 13, 2002.
29. "Development of spallation neutron sources and impact on materials research", Workshop on Development of Proton Accelerator-Based Neutron Facilities for Scientific Applications in the 21st Century, organized by China Institute of Atomic Energy and Institute of High Energy Physics, Xiangshen, Beijing China, February 18-20, 2001.
30. "Neutron study of the 4f-electronic wavefunctions and spin-lattice interactions in rare-earth orthophosphate and orthovanadates", Institute of Crystal Materials, Shandong University, Jinan, China, February 26, 2001.

31. "The method of neutron scattering and its application for studying nanostructured materials", College of Chemistry and Molecular Engineering, Peking University, Beijing, China, February 23, 2001.
32. "Development of spallation neutron sources: From accelerators to materials research", Institute of High Energy Physics, Chinese Academy of Science, Beijing, China, February 28, 2001.
33. "The method of neutron scattering and its applications for studying nanostructured materials", Physics Department, Federal University of Ceara, Fortaleza, Fortaleza, Brazil, July 17, 2001.
34. "Applications of neutron scattering for materials research: An experience based on the user program at the Intense Pulsed Neutron Source at Argonne", Neutron Scattering Laboratory, China Institute of Atomic Energy, Beijing China, February 21, 2001.
35. "Advanced neutron sources and instrumentation: An outlook of the US Spallation Neutron Source Project", Neutron Scattering Laboratory, China Institute of Atomic Energy, Beijing China, February 21, 2001.
36. "Proton conduction in yttrium-doped barium cerate ceramics under a hydrogen-containing atmosphere at high temperatures", Institute of Industrial Science, University of Tokyo, Tokyo, Japan, May 8, 2000.
37. "The method of neutron scattering and its application for studying nanostructured materials", Department of Industrial Chemistry, Science University of Tokyo, Noda, Chiba, Japan, May 11, 2000.
38. "The crystal phases, microstructure, and atomic dynamics of industry-relevant nanostructured metal oxides", Novel Scientific Instruments R&D Group, Institute of Physical and Chemical Research (RIKEN), Wako, Japan, May 5, 2000.
39. "The crystal phases, microstructure, and atomic dynamics of industry-relevant nanostructured metal oxides", The Institute of Scientific and Industrial Research, Osaka University, Osaka, Japan, April 20, 2000.
40. "The crystal phases, microstructure, and atomic dynamics of industry-relevant nanostructured metal oxides", Department Electrical and Electronic Engineering, Okayama University, Okayama, Japan, April 17, 2000.
41. "Materials research using neutrons: Five lectures", Physics Department, Niigata University, Niigata, Japan, April 3-7, 2000.
42. "Neutron-scattering applications for materials characterization", Ceramics Research Laboratory, Nagoya Institute of Technology, Tajimi, Japan, April 10, 2000.
43. "The crystal phases, microstructure, and atomic dynamics of industry-relevant nanostructured metal oxides", Research Reactor Institute, Kyoto University, Kumatori, Japan, April 19, 2000.
44. "The 4f-electronic ground states, phonons, and spin-lattice interactions in rare-earth orthophosphate and orthovanadates", Physics Department, University of Kyoto, Kyoto, Japan, April 21, 2000.
45. "SNS Long Wavelength Target Station, IPNS instrumentation & software development plan: A status report with some personal remarks", Neutron Science Laboratory (KENS), High Energy Accelerator Research Organization (KEK), Tsukuba, Japan, May 19, 2000.
46. "Neutron studies of proton conduction in yttrium-doped barium cerate ceramics and a plan of neutron instrumentation at IPNS", Japan Atomic Energy Research Institute (JAERI), Tokai, Japan, May 23, 2000.
47. "Proton conduction in yttrium-doped barium cerate ceramics under a hydrogen-containing atmosphere at high temperatures", Department of Chemistry, University of Hong Kong, Hong Kong, China, May 26, 2000.
48. "The crystal phases, microstructure, and atomic dynamics of industry-relevant nanostructured metal oxides", Department of Integrated Arts and Sciences, Hiroshima University, East Hiroshima, Japan, April 12, 2000.
49. "Atomic dynamics in minerals studies by neutron spectroscopy: from boehmite to forsterite to xenotime", Institute for the Study of Earth Interior, Okayama University, Misasa, Japan, April 18, 2000.

50. "Proton and electron conduction in yttrium-doped barium cerate ceramics under a hydrogen-containing atmosphere at high temperatures", International Conference on Multiscale Materials Phenomena in Harsh Environments, Limassol, Cyprus, June 19-24, 2000.
51. "Neutron scattering studies of advanced materials: Connecting microscopic behavior to applied properties", Physics Department, West Michigan University, Kalamazoo, Michigan, Oct 18, 1999.
52. "The role of rare-earth dopants in nanophase zirconia catalysts for automotive emission control", The 22nd Rare Earth Research Conference, Argonne National Laboratory, IL, July 10-15, 1999.
53. "Neutron studies of a complex zirconia-based system: from microemulsion to nanopowder to sintered ceramic", SURF, Workshop on Parallel Algorithms, Computational Efficiency and Multiscale Materials Simulations, New Orleans, LA, April 2-3, 1999.
54. "Neutron scattering studies of high temperature ceramics: from catalysts to luminescent materials to structural alloys", The International Meeting on Thermo-Mechanical and Electrical Properties of High-Temperature Materials, Maui, Hawaii, January 3-8, 1999, 1999.
55. "Crystal phases, microstructure and surface chemistry of industry-relevant nanostructured metal oxides", Department of Industrial Chemistry, Science University of Tokyo, Noda, Chiba, Japan, April 28, 1998.
56. "Phonon excitations and related thermal and mechanical properties of Si_3N_4 , AlN and GaN ceramics", Department of Applied Chemistry, SPRING-8, Hyogo, Japan, April 27, 1998.
57. "Phonon excitations and related thermal and mechanical properties of Si_3N_4 , AlN and GaN ceramics", Physics Department, Niigata University, Niigata, Japan, May 11, 1998.
58. "Phonon excitations and related thermal and mechanical properties of Si_3N_4 , AlN and GaN ceramics", Department of Applied Chemistry, Nagoya University, Nagoya, Japan, April 22, 1998.
59. "Neutron-scattering studies of phosphate glasses: Connecting microscopic structure to applied properties", Midwest University Conference on Glass, Iowa State University, July 27, 1998.
60. "The crystal phases, microstructure, and atomic dynamics of industry-relevant nanostructured metal oxides and nitride ceramics", Physics Department, Keio University, Yokohama, Japan, May 22, 1998.
61. "Studies of hard materials through atomic bonding and microstructure", High Energy Accelerator Research Organization (KEK), International Workshop on JHF Science (JHF98), Tsukuba, Japan, March 4-7, 1998.
62. "Crystal phases, microstructure and surface chemistry of industry-relevant nanostructured metal oxides", Japan Atomic Energy Research Institute, Meeting on The Industrial Applications of Neutron Scattering, Tokai, Japan, January 6-9, 1998.
63. "The crystal phases, microstructure, and atomic dynamics of industry-relevant nanostructured metal oxides", Department of Physics, Iowa State University, Ames, Iowa, July 25, 1998.
64. "Phonon excitations and related thermal and mechanical properties of Si_3N_4 , AlN and GaN ceramics", Meeting on New Developments in High Temperature Ceramics, Istanbul, Turkey, August 12-15, 1998.
65. "Neutron scattering studies of industry-relevant materials: Connecting microscopic behavior to applied properties", Institute for Solid State Physics, The University of Tokyo, The 7th ISSP International Symposium on Frontiers in Neutron Scattering Research, Tokyo, Japan, November 24-27, 1998.
66. "Phonon excitations and related thermal and mechanical properties of Si_3N_4 , AlN and GaN ceramics", Laboratory of Solid State and Materials Chemistry, Eindhoven University of Technology, Eindhoven, The Netherlands, August 18, 1998.
67. "Neutron scattering studies of industry-relevant materials: Connecting microscopic behavior to applied properties", Department of Physics and Astronomy, Bowling Green State University, Bowling Green, OH, October 29, 1998.
68. "The processing and functionality of nitride, oxide, and phosphate ceramics characterized by neutron scattering", Conference on Computer-Aided Design of High-Temperature Materials, Santa Fe, July 30 - August 2, 1997.

69. "Structural characterization of high-surface-area alumina powders in a length scale of 5-1000Å", Conference on Multiscale Phenomena in Science and Engineering, Baton Rouge, LA, February 7-9, 1997.
70. "Applications of neutron scattering for materials characterization", CCLMS Group, Louisiana State University, Baton Rouge, LA, February 5, 1997.
71. "Characterization of microscopic properties of advanced materials by neutron spectroscopy and neutron-scattering studies of magnetic materials", Workshop on Neutrons in Contemporary Materials Research, Institute of Nuclear Energy Research, Taiwan, December 15-17, 1997.
72. "Structure and dynamics of phosphate glasses: from ultra- to orthophosphate composition", International Conference on Neutron Scattering, Toronto, Canada, August 17-21, 1997.
73. "Experimental studies of phonons: a possible synergy of neutrons and x-rays?" Advanced Photon Source, Workshop on Inelastic Nuclear Resonant Scattering, Argonne, IL, April 21-22, 1997.
74. "Atomic structure and dynamics of practical ceramics: from nanoscale particles to sintered components", Conference on Experimental and Simulation Challenges in Nanostructured Materials, Baton Rouge, LA, February 15-17, 1996.
75. "Property characterization of technical ceramics: added capabilities from an advanced pulsed neutron source", High Energy Accelerator Research Organization (KEK), International Workshop on Science in Neutron-Arena of JHP, Tsukuba, Japan, March 26-27, 1996.
76. "Magnetic and phonon excitations in RPO_4 ($\text{R} = \text{Tb to Lu}$) studied by neutron scattering", Solid State Division Seminar, Oak Ridge National Laboratory, Oak Ridge, TN, January 18, 1995.
77. "Phosphate crystals and glasses containing rare earths: from waste-storage medium to fiber optics", Chemical Technology Division Seminar, Argonne National Laboratory, Argonne, IL, March 3, 1995.
78. "Magnetic excitations and rare-earth activated luminescence in crystalline and glassy phosphate materials", Chemistry Division Seminar, Argonne National Laboratory, Argonne, IL, December 11, 1995.
79. "Application of neutron scattering for chemical research", Department of Industrial Chemistry, Science University of Tokyo, Chiba, Japan, Oct 1-10, 1994.
80. "Crystal structure and phonon density-of-states of high-temperature ceramics silicon nitride", Chemistry Department, Nagoya Institute of Technology, Nagoya, Japan, October 6, 1994.
81. "Rare earth crystal field spectroscopy by neutron magnetic scattering: from xenotime to High- T_c superconductors", Twentieth Rare Earth Research Conference, Monterey, CA, September 12-17, 1993.
82. "Crystal-field excitations and Jahn-Teller Effects in rare-earth orthophosphates", Neutron-scattering Group Seminar, Paul Scherrer Institut, Villigen, Switzerland, May 20, 1993.
83. "Crystal-field effects on the magnetic properties of RPO_4 ($\text{R} = \text{Tb-Lu}$)", Neutron-scattering Group Seminar, Institut für Festkörperforschung, Jülich, Germany, May 17, 1993.
84. "Incoherent neutron scattering studies of hydrogen-bonded systems: formic acid, ethanol in vycor glass, and water in $\text{AlPO}_4\cdot 5$ molecular sieve", Institut d'Etudes Scientifiques de Cargese, NATO Advanced Research Workshop on Hydrogen Bond Networks, Corsica, France, August 16-22, 1993.
85. "Neutron-scattering studies of advanced rare-earth materials: from xenotime to high- T_c superconductors", Physics Department Seminar, Pennsylvania State University, University Park, PA, November 2, 1992.
86. "Electron-phonon coupling, oxygen isotope effect, and superconductivity in $\text{Ba}_{1-x}\text{K}_x\text{BiO}_3$ ", Symposium on the Manifestations of the Electron-phonon Interaction in CuO and Related Superconductors, Oaxtepec, Mexico, December 11- 14, 1990.
87. "Phonons and Superconductivity in $\text{Ba}_{1-x}\text{K}_x\text{BiO}_3$ ", Solid State Physics Group Seminar, Iowa State University, Ames, IA, November 29, 1990.
88. "S(Q,E) analysis for pulsed-source chopper spectrometer data", Rutherford Appleton Laboratory, Neutron Scattering Data Analysis Conference, Dodcot, United Kingdom, March 14-16, 1990.
89. "Magnetic excitations in mixed-valent materials", Physics Department, Keio University, Yokohama, Japan, March 14, 1986.

90. "Neutron studies of magnetic excitations at high energy transfers", National Laboratory for High Energy Physics (KEK), Tsukuba, Japan, December 23, 1985.
91. "High energy magnetoc excitations by neutron scattering", Exxon Research and Engineering Co., Annandale, NJ, October 28, 1985.
92. "Neutron scattering investigation of magnetic excitations at high energy transfers", 30th Annual Conference on Magnetism and Magnetic Materials, San Diego, CA, November 27-30, 1984.



Alla cortese attenzione della Prof. Carla Andreani

Coordinatore del Centro NAST (sede)

Università degli Studi di Roma Tor Vergata

E per conoscenza

Alla Prof.ssa Annalisa D'Angelo

Presidente della Commissione Didattica

Alla Prof.ssa Silvia Licoccia

Coordinatrice del Dottorato di Ricerca in Materials for Health, Environment and Energy

OGGETTO: Trasmissione domanda per il *finanziamento di docenti in qualità di Visiting Professors per l'a.a. 2016-2017*

Caro Coordinatore,

Trasmetto la documentazione relativa alla domanda per l'accesso al finanziamento di docenti in qualità di Visiting Professors per l'a.a. 2016-2017, da me proposta, in favore del Prof. Chun-Keung Loong, *Distinguish Professor* presso la *Tsinghua University, Department of Engineering Physics, Beijing, China*. Secondo quanto indicato dal bando Visiting Professors, segnalo che il Prof. Chun-Keung Loong nel 2013 è stato *Visiting Professor* per un periodo di ricerca e studio di tre mesi presso il Centro NAST Scientist dell'Università degli Studi di Roma Tor Vergata. Il Prof. Loong è un fisico sperimentale molto noto in campo internazionale che ha svolto attività di ricerca presso il laboratorio di *Oak Ridge National Laboratory (US)*, *IPNS neutron Source di Argonne National Laboratory (US)*, ed attualmente è *Distinguish Professor* presso la *Tsinghua University, Department of Engineering Physics, Beijing, China*. Prof. Loong ha una consolidata esperienza nell'insegnamento della progettazione e realizzazione di strumentazione e tecnologie di neutroni. Insieme al Prof. J. M. Carpenter è autore del Volume "*Elements of Slow-Neutron Scattering, Basics, Techniques, and Applications*", Cambridge University Press (October 2015).

Di seguito invio le informazioni per la predisposizione della documentazione:

1) nome e cognome del docente proponente dell'Università degli Studi di Roma Tor Vergata:



ROBERTO SENESI

2) area disciplinare: Scienze Fisiche Macrosettore (02/D), Settore Scientifico Disciplinare FIS/07

3) recapito telefonico ed indirizzo e-mail: 06-72594549, roberto.senesi@uniroma2.it

4) nome, cognome, Università di provenienza del Professore visitatore: Prof. Chun-Keung Loong
Department of Engineering Physics, Tsinghua University, Beijing: E-mail: ckloong@gmail.com; Tel:
+1-619-7017736 (Mobile phone)

5) persona presso l'Università di provenienza del docente straniero: Prof. Xuewu WANG,
Department of Engineering Physics, Tsinghua University, Beijing, China, Tel +86 010 – 62784717,
Email: wangxuewu@tsinghua.edu.cn

Allegati alla domanda:

-Descrizione della qualifica scientifica come riportato nel curriculum vitae ed elenco titoli del Prof.

Chun-Keung Loong

-descrizione delle attività, periodo di permanenza, con indicazione della tipologia, ore di docenza,
denominazione dei corsi all'interno dei quali verrà svolta la docenza, e descrizione sintetica
dell'attività di ricerca.

Sono a disposizione per ulteriori informazioni ed invio

Cordiali saluti,

Prof. Roberto Senesi

Roma, 16 maggio 2016



Università degli Studi di Roma Tor Vergata
*Bando per il finanziamento di docenti in qualità di Visiting Professors per
l'a.a. 2016-2017*

Proposed by: Prof. Roberto Senesi
Physics Department, NAST Centre, University of Rome Tor Vergata

Visiting Professor: Prof. Chun-Keung Loong
Distinguish Professor
Tsinghua University, Department of Engineering Physics, Beijing, China

Descrizione Progetto:

-Data di inizio: 1 marzo 2017

-Data di termine: 31 luglio 2017

Si intende che il visiting professor trascorrerà un periodo di tre mesi presso il nostro Ateneo all'interno dell'intervallo di date sopra indicate.

-Attività didattica

L'attività didattica proposta consiste in una parte dedicata alla didattica alla didattica per Laurea magistrale in Fisica, ed in una parte dedicata alla didattica per il corso di Dottorato di Ricerca XXXII ciclo sia in Fisica che in *Materials for Health, Environment and Energy* e *Scienze Chimiche*, per un totale di 48 ore frontali (6 CFU), secondo il seguente schema:

- Laurea magistrale in Fisica, modulo di *Neutron Instrumentation and Compact Neutron Sources* nell'ambito del corso di *Fisica del Neutrone e Applicazioni* (titolare Prof. Carla Andreani), periodo Marzo 2016 - 31 Maggio 2017, secondo semestre: per un totale di 16 ore di lezioni frontali (2 CFU).
- Dottorato di ricerca in *Fisica* lezioni, corso di Linee di fascio di neutroni per lo studio della materia, periodo Dicembre 2016 - 31 Maggio 2017, per un totale di 16 ore di lezioni frontali (2 CFU).
- Dottorato di ricerca in *Materials for Health, Environment and Energy* e in *Scienze Chimiche* lezioni e moduli su Elementi di applicazioni di QENS all'indagine di Carboidrati, sistemi ionici,

metallici e ossidi e Diffrazione di Neutroni, periodo 1 Marzo 2016 - 31 Maggio 2016, 16 ore di lezioni frontali (2 CFU)

Progetto di Ricerca

L'attività di ricerca sarà incentrata su: “*Novel Technologies Compact Accelerator-driven Neutron Sources for, Nuclear Safeguards, Security, and Nonproliferation*” e focalizzata sullo sviluppo di nuove tecnologie per la salvaguardia nucleare, la sicurezza e la medicina legale per contrastare le attività illecite che coinvolgono materiali nucleari e radiologici. Si tratta di tecniche di spettroscopia di massa (in tempo di volo) per la caratterizzazione isotopica di particelle radioattive, lo sviluppo di rivelatori di neutroni per il controllo di container di grandi dimensioni, tecniche d'interrogazione attiva, basate sull'uso di sorgenti di neutroni portatili. Le attività di ricerca potrebbero essere affiancate anche da attività di addestramento alla rilevazione di materiale nucleare per doganieri e forze dell'ordine.

In questo quadro generale il programma specifico riguarderà la progettazione di un dispositivo per l'interrogazione con neutroni veloci e spettroscopia a tempo di volo e di imaging da utilizzare per il rilevamento di materiali nucleari speciali schermati in mezzi di trasporto e contenitori di carico. L'attività di ricerca prevede l'ottimizzazione del generatore di neutroni, la progettazione dello spettrometro, e lo sviluppo di algoritmi di ricostruzione dell'immagine. Il progetto beneficerà della collaborazione con il Joint Research Centre, *Institute for Transuranium Elements di Karlsruhe* (Germany), JRC-ITU della Commissione Europea, dove già si svolgono attività di tecniche nucleari forensi (tecniche per stabilire origine e possibili usi di materiale nucleare non dichiarato) e della protezione del materiale e degli impianti nucleari (prevenzione del contrabbando di materiale nucleare, controllo dell'inventario negli impianti di ricondizionamento, rivelazione attiva e passiva di materiale fissile o radioattivo, controllo della conformità fra attività dichiarate ed effettive svolte con i reattori nucleari, etc.).

Questo programma di ricerca rappresenta il completamento ed una estensione del programma di ricerca in corso tra il Prof. Chun K. Loong e il Centro NAST dell'Università degli Studi di Roma “Tor Vergata”, iniziato nel 2012. Obiettivi della presente proposta di collaborazione didattica e di ricerca sono da un lato espandere le capacità di internazionalizzazione e dell'offerta didattica



UNIVERSITA' DEGLI STUDI DI ROMA TOR VERGATA

**Centro NAST – Centro Interdipartimentale Nanoscienze, Nanotecnologie
Strumentazione Avanzata**

dell'Ateneo, dall'altro consolidare e espandere le collaborazioni di ricerca internazionali e facilitare le opportunità di stage e di esperienze internazionali per gli studenti di Tor Vergata presso le infrastrutture che partecipano alla *Union for Compact Accelerator-driven Neutron Sources- UCANS* (<http://www.ucans.org>), diretta dal Prof. Chun K. Loong.

Roma, 16 maggio 2016

Prof. Roberto Senesi