

BRIEF CURRICULUM VITAE

Paul K Chu

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Education:

- Ph. D. in Chemistry, **Cornell University**, Ithaca, New York 14853, USA (1982)
- M. S. in Chemistry, **Cornell University**, Ithaca, New York 14853, USA (1979)
- B. S. (Cum Laude & Phi Kappa Phi) in Mathematics (Hon), **The Ohio State University**, Columbus, Ohio 43210, USA (1977)

Present Academic Position:

- ♦ Chair Professor of Materials Engineering, Department of Physics & Materials Science, **City University of Hong Kong (CityU)**, Hong Kong (since 2001)

Present Professional Positions:

- ♦ Board Member and Founder, **Plasma Technology Limited**, Hong Kong (since 1998)
- ♦ Board Member and Co-Founder, **Chengdu PulseTech Electrical Co. Ltd.**, Chengdu, China (since 2001)
- ♦ Chairman, **International Plasma-Based Ion Implantation and Deposition Committee** (since 2005)
- ♦ Member, **Membership Committee (Process Engineering) of Hong Kong Academy of Engineering Sciences** (since 2016)
- ♦ Member, **IEEE Nuclear and Plasma Sciences Society Fellow Evaluation Committee** (since 2009)
- ♦ Member, **Ion Implantation Technology International Committee** (since 2004)
- ♦ Honorary Director, **International Research and Development Center for Surface Engineering of Materials**, Xian Jiaotong University, China (since 2009)
- ♦ Supervising Senior Editor, **IEEE Transactions on Plasma Science** (since 2013)
- ♦ Associate Editor, **Materials Science and Engineering: Reports** (since 2005)
- ♦ Editorial Board Member, **International Journal of Molecular Engineering** (since 2006)
- ♦ Editorial Board Member, **Surface and Interface Analysis** (since 2006)
- ♦ Editorial Board Member, **Recent Patents on Materials Science** (since 2008)
- ♦ Editorial Board Member, **Biomaterials** (since 2010)
- ♦ Editorial Board Member, **Surface and Coatings Technology** (since 2011)
- ♦ Editorial Board Member, **Versita (Physics)** (since 2012)
- ♦ Editorial Board Member, **Advanced Materials Interfaces** (since 2013)
- ♦ Editorial Board Member, **Materials and Surfaces for Biocompatible Systems** (since 2015)

Awards and Honors:

- **The President's Award** (City University of Hong Kong, 2016)
- **Highly Cited Researcher** in materials science (Thomson Reuters) (2016)
- **Leader of Shenzhen Peacock Team** 中國深圳孔雀團隊帶頭人 (2016)
- **Thousand Talents of China** 中國國家千人 (2016)
- **Leading Talents of Guangdong Province of China** 中國廣東省領軍人才 (2016)
- **The President's Award** (City University of Hong Kong, 2015)
- **Fellow of HKAES** (Hong Kong Academy of Engineering Sciences) 香港工程科學院院士 for “*seminal contributions to surface functionalization and engineering of functional materials and industrial components by plasma-based and related technology*” (2014)

- **Fellow of MRS** (Materials Research Society) for “*outstanding contributions to the development of plasma immersion ion implantation for modifying materials surfaces to improve functional properties and obtain novel structures for industrial and biomedical applications*” (2013)
- **Shanghai Natural Science Award (First Class) 上海自然科學一等獎** for “*Study on Plasma Surface Modification and Biocompatibility of Biomedical Titanium Alloys 醫用鈦合金表面等離子體改性及生物相容性研究*” (Shanghai Government, China, 2011)
- **Hong Kong Awards for Industry: Technological Achievement Certificate of Merit** (Hong Kong Government, 2011)
- **Fellow of APS** (American Physical Society) for “*seminal contributions to the understanding of plasma - materials interactions as well as development and applications of innovative plasma-based surface modification and materials synthesis technologies and instrumentation*” (2008)
- **James W Mayer Lectureship** (Materials Research Society – Taiwan, 2008)
- **Award of Excellence** for “*his work that has led to a much better fundamental understanding of how energetic plasma ions impact on and interact with surfaces. A myriad of innovative plasma technologies and applications, having industrial impact, have also been developed*” (Research Excellence Awards Scheme, City University of Hong Kong, 2007)
- **IEEE / NPSS (Nuclear and Plasma Sciences Society) Merit Award** for “*contributions to the understanding, development, and applications of plasma-based surface modification and thin film deposition technologies*” (2007)
- **Fellow of AVS** (American Vacuum Society) for “*contributions to plasma science and surface engineering of materials and industrial components*” (2006)
- **Hong Kong Awards for Industry: Technological Achievement Certificate of Merit** (Hong Kong Government, 2004)
- **Certificate of Merit in Applied Research** (City University of Hong Kong, 2004)
- **Fellow of IEEE** (Institute of Electrical and Electronics Engineers) for “*contributions to the understanding of plasma implantation and deposition*” (2003)
- **Fellow of HKIE** (Hong Kong Institution of Engineers) (1999)
- **Excellent Research Rating** (City University of Hong Kong, 1999)
- **Excellent Research Rating** (Hong Kong Research Grants Council, 1998)
- **Elected Scientific Member of The Böhmische Physical Society** for “*contributions to the fields of ion beam analysis and plasma source ion implantation*” (1997)
- **Second Best Paper Award** (IEEE International SOI Conference, Tucson, Arizona, USA, 1995)
- **Sigma Xi** (Cornell University, Ithaca, New York, USA, 1982)
- **DuPont Teaching Award** (Cornell University, Ithaca, New York, USA, 1978)
- **Phi Kappa Phi** (The Ohio State University, Columbus, Ohio, USA 1977)
- **Summa Award** (The Ohio State University, Columbus, Ohio, USA 1976)
- **The Arts and Sciences Award** (The Ohio State University, Columbus, Ohio, USA 1976)
- **American Chemical Society Summer Fellowship Award** (1976)

Advisory / Visiting Professorships (Present and Past):

- ◆ Institute & Department of Materials Science, **Fudan University**, Shanghai, China (since 1994)
- ◆ Institute of Microelectronics, **Peking University**, Beijing, China (since 1997)
- ◆ Department of Materials Engineering, **Southwest Jiaotong University**, Chengdu, China (since 1998)
- ◆ **Southwestern Institute of Physics**, China National Nuclear Corporation, Chengdu, China (since 1998)
- ◆ Department of Materials Science & Engineering, **Shanghai Jiaotong University**, Shanghai, China (since 2003)
- ◆ School of Materials Science & Engineering, **Harbin Institute of Technology**, Harbin, China (since 2005)
- ◆ Department of Physics, **Nanjing University**, Nanjing, China (since 2005)
- ◆ College of Materials Engineering, **Jiamusi University**, Jiamusi, China (since 2005)
- ◆ **Shanghai Institute of Ceramics**, Chinese Academy of Sciences, Shanghai, China (since 2006)
- ◆ **Shanghai Institute of Microsystem and Information Technology**, Chinese Academy of Sciences, Shanghai, China (since 2006)

- ◆ School of Materials Science and Engineering, **Xian Jiaotong University**, Xi'an, China (since 2008)
- ◆ **Sichuan University**, Chengdu, China (since 2008)
- ◆ **Wuhan University of Science and Technology**, Wuhan, China (since 2008)
- ◆ **Shenzhen Institutes of Advanced Technology**, Chinese Academy of Sciences, Shenzhen, China (since 2014)

Patents, Editorships, and Publications:

- 13 United States patents granted (US#6051073, US#6113735, US#6120660, US#6186091, US#6217724, US#6228176, US#6269765, US#6740843, US#7589474B2, US#7741621B2, US#7803234B2, US#8119208B2, and US#8981096B2)
- 11 Chinese patents granted (ZL-02240946.7, ZL02275571.3, ZL00106152.6, ZL02141205.7, ZL200410108295.1, ZL200410018294.7, CN101003868A, ZL 201080008828.1, CN103361595B, CN103834984A, and CN103816574A)
- 1 European patent granted (EP1835946B1)
- Chief Guest Editor, Surface and Coatings Technology, vol. 312 (2017)
- Chief Guest Editor, Surface and Coatings Technology, vol. 306, part A (2016)
- Co-Guest Editor, Surface and Coatings Technology, vol. 233 (2013)
- Co-Guest Editor, Surface and Coatings Technology, vol. 229 (2013)
- Chief Guest Editor, Vacuum, vol. 89 (2013)
- Co-Guest Editor, Journal of Nanoscience and Nanotechnology, vol. 11, no. 12 (2011)
- Co-Guest Editor, IEEE Transactions on Plasma Science, vol. 39, no. 11 (2011)
- Special Issue Editor, Materials Science and Engineering Reports, vol. 70, no. 3 – 6 (2010)
- Co-Guest Editor, IEEE Transactions on Plasma Science, vol. 37, no. 7 (2009)
- Co-Guest Editor, Surface and Coatings Technology, vol. 201, no. 15 (2007)
- Co-Guest Editor, IEEE Transactions on Plasma Science, vol. 34, no. 4 (2006)
- Co-Guest Editor, IEEE Transactions on Plasma Science, vol. 33, no. 2 (2005)
- Co-Guest Editor, IEEE Transactions on Plasma Science, vol. 32, no. 2 (2004)
- Co-author of 1 book and co-editor of 8 books
- More than 35 book chapters, 1,500 journal papers, and 950 conference publications including more than 150 plenary / keynote / invited papers and presentations
- More than 10 short courses on materials characterization and surface analysis to professionals in the US, Canada, Japan, Korea, Taiwan, and Singapore for Charles Evans & Associates (USA), University of California Extension (USA), National University of Singapore, National Tsinghua University (Taiwan), National Chiao Tung University (Taiwan), and Fudan University (China)

Conference Organization:

General chair, co-chairman, member of advisory / international / organizing / program committee, or session chair of many international conferences on plasma science and engineering, microelectronics, materials science and engineering, including:

- Plasma-Based Ion Implantation and Deposition (PBII&D) Workshop - Dresden, Germany 1996; Detroit, USA 1998; Kyoto, Japan 1999; Grenoble, France 2001; San Antonio, USA 2003; Chengdu, China 2005; Leipzig, Germany 2007; Sao Paulo, Brazil 2009; Harbin, China 2011; Poitiers, France 2013; Buenos Aires, Argentina 2015; Shanghai, China 2017
- International Ion Implantation Technology Conference (IIT) - Taipei, Taiwan 2004; Marseille, France 2006; Monterey, USA 2008; Kyoto, Japan 2010; Valladolid, Spain 2012; Tainan, Taiwan 2016; Würzburg, Germany 2018
- IEEE International Conference on Plasma Science (ICOPS) - Boston, USA 1996; San Diego, USA 1997; Raleigh, USA 1998; Monterey, USA 1999; Jeju, Korea 2003; Washington DC, USA 2014
- Materials Research Society (MRS) - Spring Meeting, San Francisco, USA 2007; Spring Meeting, San Francisco, USA 2009
- Materials Research Society Japan (MRS-J) Annual Meeting – Yokohama, Japan 2010; Yokohama, Japan 2011; Yokohama, Japan 2012; Yokohama, Japan 2013; Yokohama, Japan 2015; Yokohama, Japan 2016

- IUMRS (International Union of Materials Research Societies) International Conference in Asia (ICA) - Nagoya, Japan 2008; Fukuoka, Japan 2014
- IUMRS (International Union of Materials Research Societies) International Conference on Advanced Materials (15th IUMRS-ICAM) - Kyoto, Japan 2017
- IUMRS (International Union of Materials Research Societies) International Conference on Electronic Materials (IUMRS-ICEM 2012) - Yokohama, Japan 2012
- International Conference on Surface Modification of Materials by Ion Beams (SMMIB) - Mumbai, India 2007; Harbin, China 2011; Kusadasi, Turkey 2013; Chiang Mai, Thailand 2015; Lisbon, Portugal, 2017
- International Conference on Solid-State and Integrated Circuit Technology (ICSICT) - Beijing, China 1986, 1992, 1995, 1998; Shanghai, China 2001; Beijing, China 2004; Shanghai, China 2006; Beijing, China 2008; Shanghai, China 2010; Guilin, China 2014
- International Conference on Materials and Process Characterization (ICMPC) - Shanghai, China 1988, 1991; Kunming, China 1994; Shanghai, China 1997
- 7th Secondary Ion Mass Spectrometry Conference (SIMS-VII) - Monterey, USA 1989
- International Conference on Plasma Science & Technology (ICPST) - Chengdu, China 1994
- International Conference on Surface Engineering (ICSE) - Shanghai, China 1997; Shenzhen, China 2004
- International Conference on Physical and Numerical Simulation of Materials and Hot Working (ICPNS) - Beijing, China 1999
- International Workshop on Junction Technology (IWJT) - Tokyo, Japan 2001; Shanghai, China 2004; Tokyo, Japan 2005; Shanghai, China 2006; Kyoto, Japan 2007; Shanghai, China 2008; Tokyo, Japan 2009; Shanghai, China 2010; Kyoto, Japan 2013; Kyoto, Japan 2015; Kyoto, Japan 2017
- 14th Chinese National and Taiwan/ Hong Kong Semiconductor Physics Conference - Hong Kong 2003
- WINP - Hong Kong 2003
- 2nd International Workshop on Particle Beams & Plasma Interaction on Materials and 2nd Asia Symposium on Ion & Plasma Surface Finishing (PIM & ASIP) - Thailand 2004
- Asian-European International Conference on Plasma Surface Engineering (AEPSE) - Qingdao, China 2005; Nagasaki, Japan 2007; Dalian, China 2011
- International Conference on Surfaces, Coatings and Nanostructured Materials (ICSCnanoSMat) - Aveiro, Portugal 2005; Algarve, Portugal 2007
- International Conference on Ion Beam Modification of Materials (IBMM) - Taormina, Italy 2006; Dresden, Germany 2008
- Siam Physics Congress (SPC) - Nakorn Pathom, Thailand 2007
- International Symposium on Surface and Interface of Biomaterials (SIB) - Chengdu, China 2007
- Joint International Conference of 3rd International Conference on Surface and Interface Science and Engineering (SISE 2007) and Symposium on Surface Engineering for Industrial Applications (SEIA 2007) - Singapore 2007
- IEEE International Conference on Electron Devices and Solid-State Circuits (EDSSC 2007) - Tainan, Taiwan 2007
- IEEE International Nanoelectronics Conference (INEC) - Shanghai, China 2008; Hong Kong 2010; Singapore 2013
- Biomedical Engineering International Conference (BME) - Hong Kong 2008; Hong Kong 2010
- Biomaterials Asia - Hong Kong 2009
- 51st APS Annual Meeting of the Division of Plasma Physics - Atlanta, USA 2009
- 11th Asia Pacific Physics Conference - Shanghai, China 2010
- 3rd International Conference on Microelectronics and Plasma Technology (ICMAP) - Dalian, China 2011
- International Conference on Shape Memory and Superelastic Technologies (SMST) 2011 SMA Workshop - Hong Kong 2011
- International Conference on Technological Advances of Thin Films and Surface Coatings (ThinFilms2012) - Singapore 2012
- 4th Asian Biomaterials Congress (ABCM4) - Hong Kong 2012
- International Conference on Bioinspired and Biobased Chemistry & Materials - Nice, France 2012

- International Conference on Nanotechnology: Fundamentals and Applications (ICNFA) - Montreal, Canada 2012; Toronto, Canada 2013; Prague, Czech Republic 2014; Barcelona, Spain, 2015
- 8th Cross-Strait Film Science and Technology Seminar - Ningbo, China 2012
- Materials Science & Technology Conference & Exhibition (MS&T) - Pittsburgh, USA 2012
- 4th Asian Biomaterials Congress - Hong Kong 2013
- International Conference on Design, Analysis, Manufacturing, and Simulation (ICDAMS 2013) - Chennai, India 2013
- International Conference on Advances in Manufacturing and Materials Engineering (AMME-2014) - Karnataka, India 2014
- International Conference on Engineering Applications of Nanotechnology (ICEA) - Visakhapatnam, India 2014
- International Congress on Materials and Metallurgy (CMAM) – Hong Kong 2015
- AVS Shanghai Thin Film (TF) Conference – Shanghai 2015
- European congress on Corrosion and Surface Treatment in Industry – Tatra, Slovakia 2015
- 1st Asia-Pacific Conference on Plasma Physics AAPPS-DPP2017 – Chengdu, China 2017

Research Interests and Areas of Expertise:

- Plasma science and engineering
- Surface engineering of functional materials
- Biomaterials and nanobiology
- Energy and sensor materials
- Nanostructured thin films and interfaces

Research and Industrial Contracts (♦ on-going, ◇ completed):

- ♦ **Surface Functionalized Polyetheretherketone (PEEK) Biomedical Implants with Enhanced Osseointegration for Osteoporotic and Related Orthopedic Applications** (*P. K. Chu*), City University of Hong Kong Applied Research Grant 9667144 [HK\$ 240,000], 2017 – 2019
- ♦ **Medical Biomimetic Ti Alloys Research and Development Team 醫用仿生鈦合金研發團隊** (*P. K. Chu, K. W. K. Yeung, R. K. Y. Fu, P. H. Li, and L. P. Tong*), Shenzhen City Foreign High-Level Talents Peacock Team 深圳市海外高層次人才孔雀團隊 [Chinese RMB 20,000,000], 2016 – 2021
- ♦ **Self-Cleaning Non-Icing Shape Memory Alloy Thin Film** (*P. K. Chu*), City University of Hong Kong Strategic Research Grant 7004644 [HK\$ 100,000], 2016 – 2018
- ♦ **Novel Method to Fabricate Aluminum-Doped Zinc Oxide (AZO) Films for Industrial Applications** (*P. K. Chu*), City University of Hong Kong Applied Research Grant 9667122 [HK\$ 200,000], 2016 – 2018
- ♦ **Leading Talents of Guangdong Province 廣東省領軍人才** (*P. K. Chu*), Guangdong Province [Chinese RMB 9,000,000], 2016 – 2020
- ♦ **Surface Modification of Biometals by Plasma-Based Technology** (*P. K. Chu*), Hong Kong Research Grants Council (RGC) General Research Funds CityU 11301215 [HK\$ 696,029 plus HK\$ 34,801 matching fund from City University of Hong Kong], 2016 – 2018
- ♦ **Surface Modification and Fabrication of Advanced Materials** (*P. K. Chu*), City University of Hong Kong Donation Research Grant 9220061 [HK\$ 6,186,450], 2012 – 2020
- ◇ **High Performance and High Value Adding Energy Nitrided Mineral Storage Materials** (*P. K. Chu*), City University of Hong Kong Applied Research Grant 9667104 [HK\$ 200,000], 2015 – 2016
- ◇ **Preliminary Investigation of Plasma Surface Modification of Magnesium Alloys for Biodegradation Improvement** (*P. K. Chu*), City University of Hong Kong of Strategic Research Grant 7004188 [HK\$ 100,000], 2014 – 2015
- ◇ **Novel Composite Polycrystalline Thin Film Solar Cell and Comprehensive Fabrication Platform** (*P. K. Chu*), Guangdong - Hong Kong Technology Cooperation Funding Scheme (TCFS) GHP/015/12SZ (CityU 9440103 and CityU 9678070) [HK\$ 1,999,750], 2013 – 2015
- ◇ **Three-Dimensional Mesh-Assisted Plasma Immersion Technology for Enhancement of Corrosion Resistance and Antimicrobial Properties of NiTi-Based Orthopedic Devices** (*P. K. Chu*), Hong

- Kong Research Grants Council (RGC) General Research Funds CityU 112212, [HK\$ 700,000 plus HK\$ 35,000 matching fund from City University of Hong Kong], 2013 – 2015
- ◇ **手持式介質阻擋放電等離子體滅菌裝置 Barrier Plasma Discharge Device for Bacteria Killing (P. K. Chu)**, Yunnan Aerospace Industry Corporation Contract Research 9231083, [HK\$ 1,830,000], 2013 – 2015
 - ◇ **Novel Visible-Light-Based Non-Enzymatic Detector for Diabetes (P. K. Chu)**, City University of Hong Kong Applied Research Grant 9667085 [HK\$ 200,000], 2014 – 2015
 - ◇ **Enhanced Plasma Generation for Plasma Etching of Printed Circuit/Wiring Board (P. K. Chu, D. T. K. Kwok, H. S. Cheng)**, Innovation and Technology Fund (ITF) ITS/080/13FP (CityU 9440105 and CityU 9678074) [HK\$ 999,530], 2013 – 2014
 - ◇ **Enhancement of the Biofunctionality of Polyetheretherketone (PEEK) Materials Using Plasma Surface Technology (K. W. K. Kwok, K. D. K. Luk, D. Chan, P. K. Chu, and K. M. C. Cheung)**, Hong Kong Research Grant Council General Research Funds 719411 [HK\$ 933,800], 2012 – 2014
 - ◇ **Plasma Surface Modification of Functional Materials (P. K. Chu)**, City University of Hong Kong Research Grant 9360110 [HK\$ 9,335,791], 2005 – 2014
 - ◇ **Forging of a Metal Liner into SCWG Vessels by Plasma Nitriding Enhanced by Hollow Cathode Discharge (P. K. Chu, D. T. K. Kwok, K. H. Lai, H. S. Cheng)**, City University of Hong Kong Innovation to Realization Funding (I2RF) Scheme 6351017 [HK\$ 329,165], 2013 – 2014
 - ◇ **Pocket-Size Battery-Operated Plasma Torch (P. K. Chu)**, City University of Hong Kong Applied Research Grant 9667069 [HK\$ 200,000], 2013 – 2014
 - ◇ **Development of a Flexible Catalyst Support Material for Automotive Catalytic Converter and its Coating Method (P. K. Chu and D. T. K. Kwok)**, Hong Kong Innovative and Technology Fund (ITF) ITS/057/12 (CityU 9440089) and CityU 9678054 [HK\$ 1,094,750 plus HK\$ 129,750 matching fund from City University of Hong Kong], 2012 – 2014
 - ◇ **Plasma-Surface-Treated Internal Bone Fixation Surgical Implants with Shape Memory Effects (P. K. Chu)**, City University of Hong Kong Applied Research Grant 9667066 [HK\$ 1,168,560], 2012 – 2014
 - ◇ **Advanced Plasma Immersion Technology and Applications (P. K. Chu)**, Hong Kong Research Grants Council General Research Funds CityU 112510 [HK\$ 831,426 plus HK\$ 20,000 matching fund from City University of Hong Kong], 2011 – 2013
 - ◇ **Application of Plasma Surface Treatments to Biomaterials (P. K. Chu)**, City University of Hong Kong Matching Research Grant 9678021 [HK\$ 38,671], 2010 – 2013
 - ◇ **Plasma Surface Treatment of NiTi Growing Rods for Correction of Pediatric Scoliosis (P. K. Chu)**, City University of Hong Kong Applied Research Grant 9667038 [HK\$ 200,000], 2011 – 2012
 - ◇ **Optimized Antenna and Sample Stage Designs Based on 40 kHz Pulse Generator for RF Plasma Cleaning Machine (P. K. Chu, D. T. K. Kwok)**, 珠海寶豐堂電子科技有限公司 Contract Research 9231075 [HK\$ 198,050], 2012
 - ◇ **Application of Quasi-Direct-Current Plasma Immersion Technique to Enhancement of Surface Properties of Automobile Components (P. K. Chu, D. T. K. Kwok, and T. Xiong)**, Hong Kong Innovative and Technology Fund (ITF) ITP/016/10AP (CityU 9442004) and CityU 9678023 [HK\$ 2,242,316 plus HK\$ 389,968 matching fund from City University of Hong Kong], 2010 – 2012
 - ◇ **糖尿病腎損傷尿液腎臟上皮細胞分析的臨床意義 Clinical Studies of Kidney Skin Cells Damaged by Urine in Diabetic Patients (A. Peng, P. K. Chu, et al.)**, Chinese National High Technology Research and Development 863 Project (中國國家高科技研究發展計劃 863 計劃) 2009AA02Z416 (CityU 9231026) and CityU 9678028 [Chinese RMB 500,000 plus HK\$17,528 matching fund from City University of Hong Kong], 2009 – 2011
 - ◇ **Plasma Immersion Ion Implantation and Deposition System for Microelectronics, Optoelectronics, and Nanotechnology Research (P. K. Chu, P. C. H. Chan, K. W. Cheah, K. M. C. Cheung, A. H. P. Ho, K. D. K. Luk, C. Surya, and M. Wong)**, Hong Kong Research Grants Council Special Equipment Grant CityU SEG_CityU05 [HK\$ 4,164,882 plus HK\$ 1,190,000 matching fund from City University of Hong Kong], 2008 – 2011
 - ◇ **Prevention of Orthopaedic Implant-Related Bacterial Infections Using Novel Plasma Surface Treatments (K. W. K. Yeung, F. Leung, R. Kao, P. K. Chu, K. M. C. Cheung, K. D. K. Luk, and V. Tam)**, AO Foundation Research Fund S-09-75Y [80,000 Swiss Franc], 2010 – 2011

- ◇ **Preliminary Investigation on Application of Quasi-Direct-Current Plasma Immersion Technique to Enhancement of Surface Properties of Automobile Components** (*P. K. Chu and D. T. K. Kwok*), City University of Hong Kong Applied Research Grant 9667028 [HK\$ 200,000], 2010 – 2011
- ◇ **Prevention of Orthopaedic Implant Related Bacterial Infections by Using Novel Plasma Surface Treatments** (*K. W. K. Yeung, R. Y. T. Kao, K. M. C. Cheung, K. D. K. Luk, and P. K. Chu*), Hong Kong Innovation and Technology Fund (ITF) Innovation and Technology Support Program (ITSP) Tier 3 ITS/342/09 (CityU 9449007) [HK\$ 760,000], 2010 – 2011
- ◇ **Development of Novel Plasma Modified Metallic Materials for Anterior Cruciate Ligament Reconstruction** (*K. W. K. Yeung, D. Chan, K. M. C. Cheung, P. K. Chu, and P. Yau*), Hong Kong Research Grants Council General Research Funds CityU 123708 [HK\$ 937,210 plus HK\$ 93,721 matching fund from City University of Hong Kong], 2009 – 2011
- ◇ **Improvement of the Biofunctionality of PEEK Materials Using Novel Plasma Surface Technology** (*K. W. K. Yeung, K. M. C. Cheung, P. K. Chu, K. D. K. Luk, and H. Pan*), The University of Hong Kong Seed Funding Program for Basic Research 10400532.33137.21000.323.01 [HK\$ 110,000], 2009 – 2011
- ◇ **Enhancement of Surface Properties of Biomedical Expanded Polytetrafluoroethylene (ePTFE) Using Plasma and Related Techniques** (*P. K. Chu*), City University of Hong Kong Strategic Research Grant 7008009 [HK\$ 180,000], 2009 – 2011
- ◇ **Highly-Strained Thin Solid Films for Rolled-Up Nanotechnology** (*P. K. Chu, R. K. Y. Fu, Y. F. Mei, and O. G. Schmidt*), Germany / Hong Kong Research Grants Council Joint Research Scheme G_HK019/09 (9053004) [HK\$ 30,000], 2010 – 2010
- ◇ **Metal-Gate/High-k/Strained-Si Multi-Stack Structure for Advanced CMOS Technology** (*P. K. Chu*), Hong Kong Research Grants Council General Research Funds CityU 112608 [HK\$ 452,554 plus HK\$ 45,255 matching fund from City University of Hong Kong], 2009 – 2010
- ◇ **Controlled Surface Micro- and Nano-Patterning of Biomaterials for Enhanced Biological Properties** (*P. K. Chu and N. W. Cheung*), Hong Kong Research Grants Council Competitive Earmarked Research Grant CityU 112307 [HK\$ 961,920 plus HK\$ 96,192 matching fund from City University of Hong Kong], 2008 – 2010
- ◇ **Development of Novel Biodegradable Metallic Materials for Orthopedics** (*K. W. K. Yeung, P. K. Chu, K. M. C. Cheung, D. Chan, and K. Luk*), Hong Kong Research Grants Council Competitive Earmarked Research Grant CityU 718507 [HK\$ 739,200], 2007 – 2010
- ◇ **Conference Grant for 3rd IEEE International NanoElectronics Conference (INEC) 2010** (*P. K. Chu*), The Croucher Foundation [HK\$ 100,000], 2009 – 2010
- ◇ **Plasma Immersion Ion Implantation and Deposition (PIII&D) Equipment** (*P. K. Chu, P. C. H. Chan, K. W. Cheah, K. M. C. Cheung, A. H. P. Ho, K. D. K. Luk, C. F. Ng, C. Surya, M. Wong, and S. P. Wong*), Hong Kong Research Grants Council Central Allocation Equipment Grant CityU 1/06C [HK\$ 2,800,000 plus HK\$ 150,000 matching fund from The University of Hong Kong and HK\$ 280,000 from City University of Hong Kong], 2007 – 2010
- ◇ **Enhancement of Surface Biological / Biomedical Properties of Medical Polymers by Medium-Energy Plasma Processes** (*P. K. Chu*), Hong Kong Research Grants Council Competitive Earmarked Research Grant CityU 112306 [HK\$ 1,495,125 plus HK\$ 149,513 matching fund from City University of Hong Kong], 2007 – 2009
- ◇ **Optimization and Commercialization of Novel Metallic Materials for Orthopaedic Use** (*K. M. C. Cheung, K. W. K. Yeung, K. D. K. Luk, P. K. Chu, W. W. Lu, D. Chan, C. Y. Chung, M. Zhu, X. P. Zhang, and J. Karlberg*), Guangdong – Hong Kong Technology Cooperation Funding Scheme, Hong Kong Innovation and Technology Fund (ITF) GHP/019/05 (CityU 9449004) [HK\$ 9,300,000], 2006 – 2009
- ◇ **Design and Construction of New Plasma Laboratory** (*P. K. Chu*), City University of Hong Kong Central Funding [HK\$19,000,000], 2008 – 2009
- ◇ **Enhancement of Corrosion Properties of Biodegradable Magnesium Alloys Used in Orthopedic Implants by Means of Plasma Surface Modification** (*P. K. Chu*), City University of Hong Kong Applied Research Grant 9667011 [HK\$ 1,000,000], 2007 – 2009
- ◇ **Controlled Synthesis and Characterization of One-Dimensional Zinc Oxide Nanostructures on Conducting Brass Substrate** (*P. K. Chu and K. F. Huo*), City University of Hong Kong Strategic Research Grant 7002138 [HK\$ 180,000], 2007 – 2008

- ◇ **Development of Commercial Plasma-Treated Orthopedic Implants with Shape Memory and Super-Elastic Properties** (*P. K. Chu, C. Y. Chung, K. M. C. Cheung, and K. D. K. Luk*), City University of Hong Kong Applied Research Grant 9667002 [HK\$ 1,140,000], 2006 – 2008
- ◇ **Accurate Measurement of Secondary Electron Emission Coefficients of Dielectric Surfaces** (*P. K. Chu and D. T. K. Kwok*), City University of Hong Kong Strategic Research Grant 7001981 [HK\$ 180,000], 2006 – 2007
- ◇ **Development of Novel Materials for Orthopedics** (*P. K. Chu, K. D. K. Luk, K. M. C. Cheung, W. W. Lu, S. C. Tjong, C. Y. Chung, D. Chan, and Q. P. Sun*), Hong Kong Research Grants Council Central Allocation Grant CityU 1/04C [HK\$ 4,140,000 plus HK\$ 400,000 matching fund from City University of Hong Kong], 2005 – 2008
- ◇ **Surface Modification of Nitinol by Plasma Immersion Ion Implantation** (*K. M. C. Cheung, P. K. Chu, K. D. K. Luk, and W. W. Lu*), Scoliosis Research Society (USA) Standard Research Grant [US\$ 100,000], 2005 – 2007
- ◇ **Improvement of Quality and Efficiency of the Ion Cutting Process Using Dual Plasma Implantation and Plasma Hydrogenation** (*P. K. Chu*), City University of Hong Kong Strategic Research Grant 7001820 [HK\$ 180,000], 2005 – 2006
- ◇ **Biocompatibility of Plasma Treated and Doped Diamond-Like Diamond** (*P. K. Chu*), Hong Kong Research Grants Council Competitive Earmarked Research Grant CityU 1120/04E [HK\$ 645,147 plus HK\$ 50,000 matching fund from City University of Hong Kong], 2004 – 2007
- ◇ **Plasma Surface Modification of Blood Contacting Materials and Investigation of Mechanism of Blood Compatibility** (*P. K. Chu and N. Huang*), National Science Foundation China (NSFC) / Hong Kong Research Grants Council (RGC) Joint Scheme N_CityU 101/03 [HK\$ 687,400 and RMB\$ 260,000 plus HK\$ 50,000 matching fund from City University of Hong Kong], 2004 – 2007
- ◇ **Mechanical Characterization of Plasma Immersion Ion Implanted Nickel Titanium Alloy** (*K. Cheung, W. Lu, C. Y. Chung, P. Chu, and K. Luk*), Synthes USA [US\$ 118,540], 2005 – 2006
- ◇ **Plasma Immersion Ion Implantation of Insulating Materials** (*P. K. Chu and D. R. McKenzie*), Research Grants Council Competitive Earmarked Research Grant CityU 1137/03E [HK\$ 481,913 plus HK\$ 48,191 matching funding from the City University of Hong Kong], 2003 – 2005
- ◇ **Theoretical Simulation of Plasma Implantation into Insulators** (*P. K. Chu*), City University of Hong Kong Strategic Research Grant 7001642 [HK\$ 180,000], 2004 – 2005
- ◇ **Development of Nanocomposite Coatings for Manufacturing Industries** (*Y. W. Mai, E. Cheung, Y. G. Shen, K. Y. Li, H. Chen, and P. K. Chu*), Innovation and Technology Commission-Innovation and Technology Fund, Hong Kong Industry Department 9440021 [HK\$ 8,300,000], 2002 – 2005
- ◇ **Improved Bioactivity of Titanium by Plasma Immersion Ion Implantation** (*P. K. Chu and M. Maitz*), City University of Hong Kong Strategic Research Grant 7001447 [HK\$200,000], 2003 – 2004
- ◇ **Development of Cathodic Arc Plasma Immersion Ion Implantation (PIII) for Biomaterials Application** (*M. M. M. Bilek, D. R. McKenzie, and P. K. Chu*), Australian Research Council (ARC) Discovery Project DP0210853 [Aus\$ 477,000], 2002 – 2004
- ◇ **Plasma Engineering of Silicon-Based Blue Light Emitting Materials** (*P. K. Chu*), Hong Kong Research Grants Council Competitive Earmarked Research Grant CityU 1052/02E [HK\$ 433,404], 2002 – 2004
- ◇ **Steady-State Direct-Current Plasma Immersion Ion Implantation** (*P. K. Chu*), Hong Kong Research Grants Council Competitive Earmarked Research Grant CityU 1013/01E [HK\$ 981,812], 2001 – 2004
- ◇ **Na Plasma Immersion Ion Implantation into Titanium for Improved Bioactivity** (*P. K. Chu and W. Möller*), Germany / Hong Kong Research Grants Council Joint Research Scheme RGC G_HK001/02 [HK\$29,400], 2003 – 2004
- ◇ **Biocompatibility Studies of Diamond-Like Carbon (DLC) Films Fabricated by Plasma Immersion Ion Implantation / Deposition** (*P. K. Chu*), City University of Hong Kong Strategic Research Grant 7001389 [HK\$ 231,713], 2002 – 2003
- ◇ **Investigation of Plasma Transport in Cathodic Arc Plasma Source** (*P. K. Chu*), City University of Hong Kong Strategic Research Grant 7001177 [HK\$ 250,000], 2001 – 2002
- ◇ **Plasma Immersion Treatment of Biomedical Materials and Components** (*P. K. Chu*), Hong Kong Research Grants Council Competitive Earmarked Research Grant CityU 1032/00E [HK\$ 687,817 plus HK\$ 68,781.70 matching fund from City University of Hong Kong], 2000 – 2002

- ◇ **Simulation of Plasma Ion Implantation Process into Gear Structures and Irregular-Shaped Commercial Components Using Three-Dimensional Models** (*P. K. Chu and T. K. Kwok*), City University of Hong Kong Strategic Research Grant 7001028, [HK\$ 301,302], 2000 – 2001
- ◇ **Investigation of Uniformity, Contamination, and In-Situ Dose Monitoring in Plasma Immersion Ion Implantation (PIII) for Microelectronics Applications** (*P. K. Chu*), Hong Kong Research Grants Council Competitive Earmarked Research Grant CityU 1003/99E, [HK\$ 747,000 plus HK\$ 74,700 matching fund from City University of Hong Kong], 1999-2001
- ◇ **Biocompatible Surface Layers by Enhanced X-Ray Contrast** (*P. K. Chu and W. Möller*), Germany / Hong Kong Research Grants Council Joint Research Scheme 9050150 [HK\$ 26,000 plus separate fund from German DAAD], 2000 – 2001
- ◇ **Deposition of Nb/NbN Layers on Titanium by Plasma Immersion Ion Implantation** (*P. K. Chu and W. Möller*), Germany / Hong Kong Research Grants Council Joint Research Scheme 9050084 [HK\$ 42,000 plus matching fund from German DAAD], 1997 – 2000
- ◇ **Ion-Cut by Plasma Immersion Ion Implantation** (*P. K. Chu*), Hong Kong Research Grants Council Competitive Earmarked Research Grant CityU 1015/98E, [HK\$ 1,384,000 plus HK\$ 138,400 matching fund from City University of Hong Kong], 1998 – 2000
- ◇ **Plasma Immersion Ion Implanter for Biomedical Materials** (*P. K. Chu*), Southwest Jiaotong University [HK\$ 2,883,860], 1999 – 2000
- ◇ **Design and Construction of Commercial Plasma Immersion Ion Implanters for Surface Treatment and Modification of Industrial Materials and Components** (*P. K. Chu*), Hong Kong Industry Department [HK\$ 1,000,000], 1998 – 2000
- ◇ **The Role of Surface Hydrogen in Plasma Immersion Ion Implantation** (*P. K. Chu and T. K. Kwok*), City University of Hong Kong Strategic Research Grant 7000964, [HK\$ 235,000], 1999
- ◇ **Enhancement of Surface Properties of Advanced Components Using Plasma Immersion Ion Implantation** (*P. K. Chu*), Hong Kong Research Grants Council Competitive Earmarked Research Grant CityU 1003/97E, [HK\$ 1,399,120], 1997 – 1999
- ◇ **High Power Solid-State Modulator for Plasma Immersion Ion Implantation** (*P. K. Chu*), City University of Hong Kong [HK\$ 1,500,000], Hong Kong University of Science & Technology [HK\$ 100,000], Hong Kong University [HK\$ 100,000], 1998
- ◇ **Fabrication of Thin SIMOX (Separation by Implantation of Oxygen) by PIII (Plasma Immersion Ion Implantation)** (*P. K. Chu and Y. C. Cheng*), Hong Kong Research Grants Council Competitive Earmarked Research Grant CityU 1034/96E [HK\$ 1,208,000], 1996 – 1998 (*awarded “Excellent” rating*)
- ◇ **SOI Synthesis by Plasma Immersion Ion Implantation** (*P. K. Chu*), Industrial Contract from Silicon Genesis Corporation, Campbell, California, USA [US\$ 126,300], 1997 – 1998
- ◇ **Treatment of Interior Surfaces of Cylindrical Components** (*P. K. Chu and T. K. Kwok*), City University of Hong Kong Strategic Research Grant 7000730 [HK\$ 376,000], 1997 – 1998 (*awarded “Excellent” rating*)
- ◇ **Plasma Immersion Ion Implantation Facility** (*P. K. Chu*), City University of Hong Kong [HK\$ 800,000], Materials Research Center, City University of Hong Kong [HK\$ 400,000], 1997
- ◇ **Surface Modification and Strengthening of Aerospace and Other Critical Components** (*P. K. Chu*), City University of Hong Kong Strategic Research Grant 7000621 [HK\$ 260,000], 1996 – 1997
- ◇ **Establishment of a Plasma Immersion Ion Implantation Facility for Surface Treatment of Advanced Materials** (*P. K. Chu, Y. C. Cheng, and P. K. Ko*), Hong Kong Research Grants Council Central Allocation Grant CityU 1/94C [HK\$ 1,600,000], Hong Kong University of Science & Technology Matching Grant [HK\$ 250,000], City University of Hong Kong Supplementation Grant [HK\$ 1,270,000], Materials Research Center (City University of Hong Kong) Grant [HK\$ 200,000] 1995 – 1997
- ◇ **Fabrication and Characterization of Hetero-Epitaxial CoSi₂ Thin Films on Si by Co/Ti/Si Ternary Solid State Interaction** (*P. K. Chu*), City University of Hong Kong Strategic Research Grant 7000530 [HK\$ 345,420], 1995 – 1997
- ◇ **Formation of SIMON (Separation by Implantation of Oxygen and Nitrogen) by Plasma Immersion Ion Implantation** (*P. K. Chu and Y. C. Cheng*), City University of Hong Kong Strategic Research Grant 7000472 [HK\$329,460], 1995 – 1996

- ◇ **Plasma Immersion Ion Implantation of Semiconductor Materials** (*P. K. Chu and P. K. Ko*), City University of Hong Kong Grant 9050037 [HK\$ 330,000], 1994 – 1996
- ◇ **Design and Construction of a Class-1000 Cleanroom for Plasma Immersion Ion Implantation** (*P. K. Chu*), City University of Hong Kong Central Funding [HK\$ 4,100,000], 1995 – 1996
- ◇ **A Novel Chamber Design for Plasma Immersion Ion Implantation** (*Y. C. Cheng and P. K. Chu*), City University of Hong Kong Strategic Research Grant 7000338 [HK\$ 346,816], 1994 – 1996
- ◇ **Design and Fabrication of High Speed SIMOX SOI/CMOS Gate Arrays** (*P. K. Chu and Y. C. Cheng*), City University of Hong Kong Strategic Research Grant 7000340 [HK\$ 346,819], 1994 – 1995
- ◇ **Fabrication and Characterization of SIMOX Wafers by Plasma Immersion Ion Implantation** (*P. K. Chu*), City Polytechnic of Hong Kong Strategic Research Grant 7000264 [HK\$ 329,000], 1993 – 1995
- ◇ **Micro-volume SIMS of Biological Materials** (*P. K. Chu, et al.*), National Institute of Health (USA) SBIR Program Phases 1 & 2 [US\$ 500,000], 1989 – 1992
- ◇ **Characterization of Advanced III-V Materials** (*P. K. Chu, et al.*), Office of Naval Research (USA) Collaborative Research Grant [US\$ 500,000], 1983 – 1986
- ◇ Co-investigator of a number of other SBIR (Small Business Innovative Research) and non-SBIR programs from 1983 to 1992, including a Strategic Defense Initiative (SDI) or "Star War" research program on the determination of ultra low impurities in III-V semiconductor materials and a US Air Force research program on imaging of particles

Previous Professional / Academic Positions:

- ◇ Editorial Board Member, **Cancer Nanotechnology: Basic, Translational and Clinical Research** (2009 - 2015)
- ◇ Member, **Hong Kong Research Grants Council (RGC) Hong Kong PhD Fellowship Scheme Selection Committee** (2011 – 2014)
- ◇ Senior Editor, **IEEE Transactions on Plasma Science** (2006 – 2013)
- ◇ Editorial Board Member, **Plasma Sources Science and Technology** (2008 - 2012)
- ◇ Associate Editor, **International Journal of Plasma Science and Engineering** (2007 – 2010)
- ◇ Technical Advisor, **National Materials & Surface Engineering Research and Development Center (Project 863)**, Shenzhen, China (2001 - 2010)
- ◇ Member, **IEEE Plasma Science and Application Executive Committee (PSAC)** (2007 – 2009)
- ◇ Member, **American Physical Society Division of Materials Physics Nominating Committee** (2008 – 2009)
- ◇ Advisor, **Shenzhen Polytechnic**, Shenzhen, China (2007 – 2009)
- ◇ Editorial Board Member, **Nuclear Instruments & Methods in Physics Research B: Beam Interactions with Materials and Atoms (NIM-B)** published by Elsevier Science (2001 – 2006)
- ◇ Member, **Hong Kong Research Grants Committee (RGC) Engineering Panel** (2000 – 2006)
- ◇ Coordinator, **International Plasma Doping Users Group** (1998 – 2005)
- ◇ Committee Member, **Hong Kong Institution of Engineers Materials Division** (2004 – 2005)
- ◇ Member, **International Plasma-Based Ion Implantation and Deposition Committee** (1996 – 2004)
- ◇ Professor, **Department of Physics & Materials Science, City University of Hong Kong (CityU)**, Hong Kong (1996 – 2001)
- ◇ President and Founder, **Evans Asia Limited**, Asia and USA (1990 – 2001)
- ◇ Advisor, **National Microanalysis Center for Microelectronic Materials & Devices**, Shanghai, China (1991 - 2000)
- ◇ Newsletter Editor, **Asia-Pacific Microanalysis Association** (1993 – 2000)
- ◇ Specialist, ISO 9000/2 Certification and Audit, **Det Norske Veritas**, Hong Kong (1995 – 1999)
- ◇ Member of Technical Advisory Board, **Silicon Genesis Corporation**, Campbell, California, USA (1997 – 1998)
- ◇ Technical / Business Consultant, **Physical Electronics Corporation**, Minnesota, USA (1996 – 1998)
- ◇ Visiting Professor, **Department of Physics & Materials Science, City University of Hong Kong**, Hong Kong (1994 – 1996)
- ◇ Research Professor, **Department of Computer Science & Institute of Microelectronics, Peking University**, Beijing, China (1993 – 1996)

- ◇ Director of Research, **Materials Research Center, City University of Hong Kong**, Hong Kong (1993 – 1996)
- ◇ Consulting Professor, **Department of Materials Science, Fudan University**, Shanghai, China (1993)
- ◇ Visiting Fellow, **Department of Applied Science, City Polytechnic of Hong Kong**, Hong Kong (1990 – 1994) – voted “*Best Lecturer*” and “*Best Speaker*” by students in 1993
- ◇ Business Consultant, **Balazs Analytical Laboratories**, Sunnyvale, California, USA (1990 – 1996)
- ◇ Technical / Business Consultant, **Cameca Instruments**, Paris, France (1990 – 1993)
- ◇ Business Consultant, **AMER-TEM**, Sunnyvale, California, USA (1990 – 1991)
- ◇ Business Consultant, **Solecon Laboratory**, San Jose, California, USA (1990 – 1991)
- ◇ Assistant to the Director, **Charles Evans & Associates**, Redwood City, California, USA (1990)
- ◇ Manager, SIMS Services, **Charles Evans & Associates**, Redwood City, California, USA (1986 – 1989)
- ◇ Senior Analyst / Associate Manager, **Charles Evans & Associates**, San Mateo, California, USA (1985 – 1986)
- ◇ Staff Analyst, **Charles Evans & Associates**, San Mateo, California, USA (1982 – 1984)
- ◇ Research Assistant, **Cornell University**, Ithaca, New York, USA (1979 – 1982)
- ◇ Teaching Assistant, **Cornell University**, Ithaca, New York, USA (1977 – 1979) – won DuPont Teaching Award in 1978
- ◇ Research Assistant, **The Ohio State University**, Columbus, Ohio, USA (1977)
- ◇ Research Chemist, **New England Aquarium**, Boston, Massachusetts, USA (1976) – won American Chemical Society Summer Fellowship
- ◇ Laboratory Assistant, **Wingate University**, Wingate, North Carolina, USA (1974 – 1975)

University and Amateur Sports:



- ◆ Honorary manager of CityU varsity swimming team (1999 – present)
- ◆ Holder of 3 CityU staff swimming records in butterfly, breast stroke, and mixed relay and previous holder of 1 CityU staff breast stroke record
- ◆ Previous co-holder of two Hong Kong masters swimming records
- ◆ Honorary manager of CityU varsity badminton team (1998 – present)
- ◆ Men’s singles, men’s doubles, mixed doubles, and teams champions in CityU staff-students badminton tournaments

Websites:

- CityU Plasma Laboratory: <http://www6.cityu.edu.hk/appkchu/plasma/default.htm>
- Paul Chu’s Home Page: http://www6.cityu.edu.hk/appkchu/plasma/Paul%20Chu/paul_chu.htm
- Plasma Technology Ltd.: <http://www.plasmatechnol.com>
- Google Scholar: http://scholar.google.com/citations?hl=en&user=m5i0T5gAAAAJ&view_op=list_works&pagesize=100
- Thomson Reuters ResearchID: <http://www.researcherid.com/rid/B-5923-2013>
- Scopus: <https://www.scopus.com/authid/detail.uri?authorId=56426644700>