

Appendix N: Continued*Physical Sciences*

	Project No.	Project Title	Principal Investigator	Awarded (HK\$)	Status
Subject Area: Chemical Engineering					
280	HKUST 6009/02P	Engineered zeolite micromembranes	Prof King Lun Yeung	550,000	On-going
281	HKUST 6018/02P	Product-centered process synthesis and development: household products	Prof Ka Ming Ng	300,000	On-going
282	HKUST 6019/02P	Development and characterization of an integrated Si-based device for in situ amplification and electrochemical detection of Traditional Chinese Medicine (TCM) DNA	Prof I Ming Hsing	380,000	On-going
283	HKUST 6056/02P	Humic like substances in atmospheric aerosols: abundance, size distributions and hygroscopic properties	Prof Chak Keung Chan	380,000	On-going
284	HKUST 6176/02P	Crystallization behavior of polymers in confined environments	Prof Chi Ming Chan	380,000	On-going
285	HKUST 6253/02P	Optimisation of operational strategy of wastewater treatment plants, particularly sequencing batch reactors, for biological carbon, nitrogen and phosphorous removal	Prof John P Barford	380,000	On-going
286	HKUST 6256/02P	Micro-rheological study of polyethylene-layered-silicates nanocomposites containing liquid crystalline copolyesters	Prof Ping Gao	380,000	On-going
Sub Area Total				2,750,000	
Subject Area: Physical Sciences					
287	CityU 1050/02P	The Role of Vertical Wind Shear and Asymmetric Convection in Tropical Cyclone Intensity Changes	Prof Johnny Chung Leung Chan	300,000	On-going
288	CityU 1051/02P	MOSFET and Radiographic Film Dosimetry for Intensity Modulated Radiation Therapy and Skin Dosimetry	Dr Tsang Cheung	420,000	On-going
289	CityU 1056/02P	Study Polarization Switching Process Using Ultrasonic Method	Prof Wenwu Cao	565,000	On-going
290	CityU 1087/02P	Approximation Theory Methods for Reproducing Kernel Hilbert Spaces	Dr Ding Xuan Zhou	350,000	On-going
291	CityU 1105/02P	Mechanisms of the Formation of the M=O Bond	Prof Tai Chu Lau	645,000	On-going
292	CityU 1106/02P	Chiral Oligopyridines for Asymmetric Allylic Oxidation and Cyclopropanation of Alkenes	Dr Hoi Lun Kwong	645,000	On-going
293	CityU 1108/02P	Development of New Luminescent Sensing Materials by Molecular Imprinting	Dr Hon Wah Lam	645,000	On-going
294	CityU 1113/02P	Conjugation of Luminescent Iridium(III) Polypyridine Complexes to Biological Substrates for Bioassay Development	Dr Kenneth Kam Wing Lo	456,000	On-going
295	CityU 1114/02P	A Theoretical Investigation on High-energy Density Materials: Nitrogen Clusters	Dr Ning Bew Wong	300,000	On-going
296	CityU 1115/02P	Synthesis, Optical and Magnetic Properties of Cyanometallate Complexes	Prof Peter Tanner	380,000	On-going
297	CityU 1134/02P	Semiconducting Cubic Boron Nitride Films	Dr Igor Bello	585,000	On-going
298	CityU 1136/02P	Micro-brillouin Scattering Study of Microheterogeneity, Relaxation and Elastic Property in Single Crystal Relaxor Ferroelectrics	Dr Zhengkui Xu	500,000	On-going
299	CityU 1138/02P	Computer-aided Design of Silicon based Novel Nanodevices	Dr Ruiqin Zhang	300,000	On-going
300	CityU 1186/02P	Computational Simulation of Atmosphere and Land Surface Interactions with Emphasis on Sub-seasonal Variability of Southeast Asian Monsoon	Dr Yaping Shao	450,000	On-going

Appendix N: Continued

Physical Sciences

		Project Title	Principal Investigator	Awarded (HK\$)	
301	CityU 1199/02P	Creep and Fatigue of Ceramic/Metal Co-continuous Composites	Dr Lawrence Chi Man Wu	380,000	On-going
302	CityU 1206/02P	Study of Alpha Track Development in Nuclear Track Detectors Using Atomic Force Microscope	Dr Peter Kwan Ngok Yu	300,000	On-going
303	CityU 1238/02P	A Multi-technique Study of Interface Formation between SiC and GaN	Prof Shuk Yin Tong	658,000	On-going
304	HKBU 2017/02P	Liquid Chromatography/Tandem Mass Spectrometry Applied to In Vitro and In Vivo Metabolism Study of Ginsenosides from Ginseng	Dr Zongwei Cai	380,000	On-going
305	HKBU 2019/02P	Synthesis and Characterization of Novel Calix[4]arene-based Functional Assemblies	Dr Ricky M S Wong	380,000	On-going
306	HKBU 2035/02P	Retention Study of Nucleobases in Lipid Molecules by Chromatography and Chemometrics	Dr Yuen Kit Cheng	450,000	On-going
307	HKBU 2037/02P	Synthesis and Characterization of Charge-Transporting Polymers(CTPs)	Dr Louis M L Leung	380,000	On-going
308	HKBU 2038/02P	Synthesis, Characterization and Luminescent Properties of 4f Mono- and 3rd-4f Bi-metallic Schiff Base Complexes	Prof Rick W K Wong	450,000	On-going
309	HKBU 2049/02P	Light Scattering Study of Metastable Double Emulsions	Dr Gang Hu	580,000	On-going
310	HKBU 2050/02P	Combined in situ Variable-temperature STM and AFM Studies of C60 Growth on Ag(100)	Prof Tong Bor Tang	380,000	On-going
311	HKBU 2051/02P	Textured Metallic Microcavity with Active Resonator Layer	Dr Kwok Wai Cheah	565,000	On-going
312	HKBU 2054/02P	Conjugated Molecular and Polymeric Materials Comprising Groups 13-15 Elements and Alkyne Units	Dr Wai Yeung Wong	380,000	On-going
313	HKBU 2076/02P	Conformational Density of States of Peptide Chains	Dr Lei Han Tang	300,000	On-going
314	CUHK 4022/02P	Exploring Mechanisms for the Thermal Dissociation and Desorption of Small Molecules adsorbed on Surfaces from First Principles	Prof Zhifeng Liu	300,000	On-going
315	CUHK 4023/02P	Metal Phosphoranimine Complexes; Synthesis, Structure and Reactivity	Prof Wing Por Leung	380,000	On-going
316	CUHK 4025/02P	Controllable and Reversible Aggregation of Soft Particles in Dispersion	Prof Chi Wu	380,000	On-going
317	CUHK 4026/02P	The Chemistry of Novel Carbons-Adjacent Carborane Anions of C2B10 System	Prof Zuowei Xie	760,000	On-going
318	CUHK 4027/02P	Sonochemical Preparation of Mesoporous Metal Oxide Catalysts for Environmental Applications	Prof Jimmy Chai Mei Yu	380,000	On-going
319	CUHK 4035/02P	Spatial Solitons in Photovoltaic Photorefractive Crystals and Their Interactions	Prof Wing Kee Lee	380,000	On-going
320	CUHK 4037/02P	A Parallel Quantum Monte Carlo Study of Magnetic and Electronic Properties of Strongly Correlated Electron Materials	Prof Hai Qing Lin	350,000	On-going
321	CUHK 4042/02P	Sensitivity Analysis of Family Selection in Multiple Inferences	Prof Siu Hung Cheung	300,000	On-going
322	CUHK 4046/02P	Turbulent Convection: Statistics, Large-scale Circulating Wind, and Heat Transport	Prof Emily Shuk Chi Ching	350,000	On-going
323	CUHK 4047/02P	Base Pair Selectivity of Low-Fidelity DNA Polymerases - Structural and Dynamics Perspectives	Prof Sik Lok Lam	380,000	On-going
324	PolyU 5278/02P	Design, Synthesis and Application of Unimolecular Nano-Catalysts Using Dendrimer-bound Chiral Phosphine Ligands	Prof Albert Sun Chi Chan	380,000	On-going

Appendix N: Continued*Physical Sciences*

	Project No.	Project Title	Principal Investigator	Awarded (HK\$)	Status
325	PolyU 5282/02P	Mediation of Chemical Reactions by Hydrogen Bonding	Dr Chak Po Lau	450,000	On-going
326	PolyU 5283/02P	A Novel Gene Delivery System Using Cationic Core-shell Nanoparticles	Dr Pei Li	645,000	On-going
327	PolyU 5286/02P	Studies on Relative Stabilities of Charge-solvated and Zwitterionic Structures of Alkali Metal Cationized Amino Acids and Peptides in the Gas Phase: Application to Peptide Sequencing by Mass Spectrometry	Dr Chun Wai Tsang	494,000	On-going
328	PolyU 5289/02P	Strain-induced Formation of Quantum Dots in Heteroepitaxial Thin Films	Dr Chi Hang Lam	300,000	On-going
329	PolyU 5291/02P	Structural, Dielectric and Pyroelectric Properties of Compositionally Graded (Sr,Ba)Nb ₂ O ₆ Films	Dr Chee Leung Mak	450,000	On-going
330	PolyU 5294/02P	Fabrication and Characterization of All Oxide p-n Junction Diodes	Dr Kin Hung Wong	610,000	On-going
331	HKUST 6057/02P	Light emission in 0.4nm single walled carbon nanotubes	Prof Zikang Tang	550,000	On-going
332	HKUST 6058/02P	Coherent wave propagation in a disordered thin layer with large internal reflections	Prof Zhaoqing Zhang	300,000	On-going
333	HKUST 6061/02P	Scanning tunneling microscopic study of 4 Å carbon nanotubes	Prof Xu Dong Xiao	550,000	On-going
334	HKUST 6062/02P	Green's function approach to the control of complexity in information processing	Prof Michael K Y Wong	350,000	On-going
335	HKUST 6063/02P	Nonlinear frequency conversion in one-dimensional photonic bandgap structures	Prof Kam Sing Wong	380,000	On-going
336	HKUST 6064/02P	MBE-grown novel magnetic tunnel junctions	Prof George K L Wong	610,000	On-going
337	HKUST 6065/02P	Ionic electrorheological suspensions	Prof Weijia Wen	742,000	On-going
338	HKUST 6067/02P	Conductance anomalies of quantum wires in the ballistic regime	Prof Xiangrong Wang	300,000	On-going
339	HKUST 6069/02P	CdS and ZnO based semimagnetic semiconductor nanostructures	Prof Jiannong Wang	380,000	On-going
340	HKUST 6070/02P	Critical thickness in dewetting organic liquid films	Prof Ophelia K C Tsui	510,000	On-going
341	HKUST 6071/02P	Interdisciplinary research on the problem of damage spreading in an evolving two-dimensional environment	Prof Kwok Yip Szeto	350,000	On-going
342	HKUST 6073/02P	Quantum fluctuations in 4Å carbon nanotubes	Prof Ping Sheng	550,000	On-going
343	HKUST 6075/02P	Novel magnetic properties of the spin gap material SrCu ₂ (BO ₃) ₂ - a numerical study	Prof Pak Wo Leung	300,000	On-going
344	HKUST 6076/02P	Band structure and wavefunction engineering of InGaAs by nitrogen doping	Prof Weikun Ge	380,000	On-going
345	HKUST 6078/02P	The study of bimetallic alloy nanoparticles as active substrates for surface-enhanced hyper-Raman scattering and surface-enhanced Raman scattering	Prof Nai Teng Yu	380,000	On-going
346	HKUST 6081/02P	Electron transmission through molecules: Effects of carrier-carrier interaction and dissipation	Prof Yijing Yan	350,000	On-going
347	HKUST 6082/02P	Develop biomimetic metallogels for sensory and catalysis	Prof Bing Xu	760,000	On-going
348	HKUST 6084/02P	Organic hydrothermal crystallization	Prof Ian D Williams	380,000	On-going
349	HKUST 6085/02P	Synthesis and properties of hyperbranched conjugative poly(arylenesilolenes)	Prof Benzong Tang	760,000	On-going

Appendix N: Continued

Physical Sciences

	Project No.	Project Title	Principal Investigator	Awarded (HK\$)	Status
350	HKUST 6087/02P	Theoretical studies of transition metal catalyzed borylation reactions	Prof Zhenyang Lin	300,000	On-going
351	HKUST 6089/02P	Luminescent materials based on iridium cyclometalated complexes	Dr Wa Hung Leung	645,000	On-going
352	HKUST 6090/02P	Synthesis and chemistry of metallabenzynes	Dr Guocheng Jia	760,000	On-going
353	HKUST 6091/02P	Chemical basis for mode of action of the anti-malarial artemisinin and the pathway to new drugs	Prof Richard K Haynes	610,000	On-going
354	HKUST 6094/02P	Design, synthesis, and study of multivalent inhibitors based on porphyrin scaffolds	Prof Chris C K Chang	380,000	On-going
355	HKUST 6119/02P	Numerical study of solar/stellar differential rotation	Dr Kwing Lam Chan	465,000	On-going
356	HKU 7093/02P	Deciphering Philippine Sea Plate's origin and motion history: new approach using terranes from the Philippines	Dr Jason Richard Ali	450,000	On-going
357	HKU 7096/02P	Hyperbranched polymeric metal complexes as novel nanomaterials	Dr Wai Kin Chan	380,000	On-going
358	HKU 7099/02P	A first-principles method for calculating STM images of nanoscale molecular systems and its application to alkyl substituted phthalocyanines and porphyrins	Dr Guanhua Chen	300,000	On-going
359	HKU 7100/02P	Consequences of spinning down neutron stars: cooling and change of internal properties	Prof Kwong Sang Cheng	350,000	On-going
360	HKU 7101/02P	Catalytic reaction in a supersonic nozzle beam: CO ₂ reforming of CH ₄	Dr Allan Shi Chung Cheung	575,000	On-going
361	HKU 7102/02P	Applications of copper hydride reductions to organic synthesis	Dr Pauline Chiu	380,000	On-going
362	HKU 7103/02P	Study of particle irradiation induced defects in silicon carbide	Prof Stevenson Hon Yuen Fung	380,000	On-going
363	HKU 7104/02P	Preparation of epitaxial YBa ₂ Cu ₃ O _y thin films on silicon with a double buffer of Eu ₂ CuO ₄ /YSZ	Dr Ju Gao	500,000	On-going
364	HKU 7105/02P	Modification of regional groundwater regimes by large-scale land reclamation	Dr Jimmy Jiu Jiu Jiao	450,000	On-going
365	HKU 7106/02P	OSL chronological studies of late quaternary sediments from south edge of Mu Us Desert in China	Dr Sheng Hua Li	430,000	On-going
366	HKU 7107/02P	Experimental studies of native defects in gallium antimonide	Dr Francis Chi Chung Ling	390,000	On-going
367	HKU 7108/02P	Time-resolved resonance raman and density functional theory investigation of the intermediates and mechanism of photorelease in selected benzoin and hydroxyphenacyl esters in aqueous solutions	Dr David Lee Phillips	555,000	On-going
368	HKU 7109/02P	Quantum ordered and disordered states in spin systems with orbital degeneracy	Dr Shunqing Shen	300,000	On-going
369	HKU 7110/02P	Recognition of antimonials by lactoferrin and trypanothione: implications for uptake, activation and targeting	Dr Hongzhe Sun	380,000	On-going
370	HKU 7111/02P	Partially linear reduced-rank regression	Prof Howell Tong	580,000	On-going
371	HKU 7112/02P	The development of polymer-based strategies for organic synthesis	Dr Patrick Henry Toy	645,000	On-going
372	HKU 7113/02P	First principle study of I-V characteristics of nanoclusters and compound semiconductor nanowires	Dr Jian Wang	394,000	On-going
373	HKU 7114/02P	Nonadiabatic geometric phases and their applications in fault-tolerant quantum computation	Prof Zidan Wang	300,000	On-going