

## Outputs Arising from Dean's Research Fund

### Seventh Round

<b>Individual Research Scheme (IRS)</b>	
Project Leader	<b>Dr Sun Fenghua, HPE</b>
Project Title ( <i>Ref No.</i> )	The neurons mechanism behind performance of brief mindfulness intervention during half time break of simulative soccer competition. ( <i>IRS-2</i> )
Output:	<p>Journal/ book</p> <p>1. Zhu, Y., Sun, F.*, Li, C., Huang, J., Hu, M., Wang, K., He, S., Wu, J., Acute effect of mindfulness-based intervention on athletes' cognitive function: – a fNIRS investigation / Journal of Exercise Science and Fitness (<i>Accepted but not yet published</i>)</p> <p>Conference</p> <p>1. 26th Annual Congress of the European College of Sport Science Title: Acute effect of brief mindfulness-based intervention on athletes' mood and salivary cortisol concentration</p>
Project Leader	<b>Dr Yuen Man Wai, MIT</b>
Project Title ( <i>Ref No.</i> )	On new analytical solutions and mathematical properties for high dimensional and multi-component Camassa-Holm systems ( <i>IRS-4</i> )
Output:	<p>Journal/ book</p> <p>1. Jiang, Z.W., Yuen, M.W., &amp; Zhang, L.*, The multi-peakon weak solution for the rotation-two-component Camassa-Holm system (<i>Under Review</i>)</p> <p>2. Geng, J., Hu, K., Lai, N. A. * &amp; Yuen, M. W., Nonexistence for the compressible Euler equations with space dependent damping in 3-D (<i>Under Review</i>)</p>
Project Leader	<b>Dr Zhang Qiaoping, MIT</b>
Project Title ( <i>Ref No.</i> )	An Exploratory Study of Secondary Mathematics Teachers' Conceptions of STEM Education in Hong Kong and Taiwan ( <i>IRS-5</i> )
Output:	<p>Journal/ book</p> <p>1. Zhang, Q. P., Zhang, X. L., &amp; Liu, J. B., A Holistic Review of Authentic Assessment in Mathematics Education/ Authentic Assessment and Evaluation Approaches and Practices in a Digital Era: A Kaleidoscope of Perspectives (<i>2021</i>)</p> <p>2. 張僑平：新學制推行以來香港數學教育的發展與挑戰/課程研究 (<i>2021</i>)</p> <p>3. 張僑平 和 陳慕丹：基於電腦的數學評價：PISA2021 數學素養</p>

	<p>測評的啟示《教學月刊》(小學版) (2021)</p> <ol style="list-style-type: none"> <li>4. 慈艷 和 張僑平：做中學、學中思：在數學實踐活動中激發學生的數學思考《小學教學》(數學版) (2021)</li> <li>5. 張僑平*、周詠南、陳美莉和麥巧玲：基於數學課題的 STEM 教學活動設計：以認識立體圖形為例/數數學教育 (2021)</li> <li>6. Zhang Q. P.*, Sze, N. L., &amp; Chia, H. M., Secondary school students' perceptions of STEM subjects and career interest: An exploratory study in Hong Kong/Educational Studies (<i>Under Review</i>)</li> <li>7. Zhang, Q. P. &amp; Yang, K. L, Mathematics teachers' conceptions of STEM education and STEM integration: A phenomenographic approach/IJSME (<i>Under Review</i>)</li> </ol> <p>Conference</p> <ol style="list-style-type: none"> <li>1. Proceedings of the 44th Conference of the International Group for the Psychology of Mathematics Education Title: Rethinking authentic assessment in mathematics education : A holistic review</li> </ol> <p>External Grant</p> <ol style="list-style-type: none"> <li>1. ECS Shaping students' lived space of mathematics learning: How mathematics teachers' beliefs and values affect their teaching (Date of application: Sept 2020)</li> </ol>
Project Leader	<b>Dr Au Ka Man, SES</b>
Project Title ( <i>Ref No.</i> )	Design and synthesis of novel metal-organic gels ( <i>IRS-6</i> )
Output:	<p>Journal/ book</p> <ol style="list-style-type: none"> <li>1. Au, K.M, Recent Advances in the Use of Metal-Organic Frameworks for Dye Adsorption, <i>Frontiers in Chemistry</i> 2020,8,708 (2021)</li> <li>2. Au, K.M, S. Y. Kwan, M. N. Lai &amp; K. H. Low, Dual-Functional Mesoporous Copper(II) Metal-Organic Frameworks for the Remediation of Organic Dyes. <i>Chemistry - A European Journal</i> 2021,27,9174 (2021)</li> </ol> <p>Conference</p> <ol style="list-style-type: none"> <li>1. ACS Spring 2021 – Macromolecular Chemistry – The Second Century Title: Dual-Functional Copper Metal-Organic Frameworks for Dye Removal</li> <li>2. ACS Publications Symposium – The Power of Chemical Transformation Title: Photocatalytic Degradation of Tartrazine with a Copper(II)</li> </ol>

	<p>Metal-Organic Framework</p> <p>External Grant</p> <p>1. GRF</p> <p>Design and synthesis of luminescent MOF-gel composites with hierarchical porosity (Date of application: Nov 2021)</p>
Project Leader	<b>Prof Chow Cheuk Fai Stephen, SES</b>
Project Title ( <i>Ref No.</i> )	Design and Development Smart Latent Catalytic Systems. ( <i>IRS-8</i> )
Output:	<p>Journal/ book</p> <p>1. Zheng, A., Cheng, B. G.* &amp; Chow, C. F.*, Selective detection for methomyl pesticide via catalytic chemosensing assay Chemistry, A European Journal, 26, 63, p.14461-14466 (2020)</p> <p>External Grant</p> <p>1. GRF</p> <p>Synthesis and Catalytic Halopgenation Studies of High-Valent Iron(IV/V)-oxo-halide Complexes (Date of application: Nov 2020)</p>
Project Leader	<b>Dr Deng Wenjing, SES</b>
Project Title ( <i>Ref No.</i> )	Children's non-dietary exposure to emerging flame retardants via school and household indoor dust intake ( <i>IRS-9</i> )
Output:	<p>Journal/ book</p> <p>1. Hu, L. X., Deng W. J.*, Ying, G. G. &amp; Hong, H. C., Environmental perspective of COVID-19: atmospheric and wastewater environment in relation to pandemic. Ecotoxicology and Environmental Safety 219, 112297. (2021)</p> <p>2. Li, N., Ying, G. G., Hong, H. C., Tsang, E. P. K. &amp; Deng, W. J.*, Plasticizer contamination in the urine and hair of preschool children, airborne particles in kindergartens, and drinking water in Hong Kong. Environmental Pollution 271, 116394. (2021)</p> <p>3. Li, N., Ying, G. G., Hong H.C. &amp; Deng W. J.* Perfluoroalkyl Substances in the Urine and Hair of Preschool Children, Airborne Particles in Kindergartens, and Drinking Water in Hong Kong. Environmental Pollution 270, 116219 (2021)</p> <p>External Grant</p> <p>1. UGC GRF</p> <p>Does dietary intake of veterinary antibiotics affect intestinal microflora and pose a health risk on children (Date of application: Nov 2020)</p>
Project Leader	<b>Dr Li Wai Chin, SES</b>
Project Title ( <i>Ref No.</i> )	<i>Do root apoplastic barriers hinder cadmium (Cd) transfer from soil to</i>

	<i>rice? (IRS-10)</i>
Output:	<p>Journal/ book</p> <ol style="list-style-type: none"> <li>Xiao, A., Chen, D., Li, W. C.* &amp; Ye, Z, Root Morphology and Anatomy Affect Cadmium Translocation and Accumulation in Rice. Rice Science, Vol 28. (2021)</li> </ol> <p>External Grant</p> <ol style="list-style-type: none"> <li>GRF The mechanism of arsenic and antimony mineralization and its application in soil remediation at antimony smelting contaminated (Date of application: Sept 2021)</li> </ol>
Project Leader	<b>Dr Man Yu Bon, SES</b>
Project Title ( <i>Ref No.</i> )	Spent Coffee ground-based biochar-supplemented fish feed for lowering uptake of perfluorooctanoic acid and perfluorooctanesulfonic acid by grass carp ( <i>IRS-11</i> )
Output:	<p>Journal/ book</p> <ol style="list-style-type: none"> <li>Man, Y. B., Zhang, F. Ma, K. L., Mo, W. Y. Kwan, H. S., Chow, K. L., Man, K. Y., Tsang, Y. F., Li, W. C. &amp; Wong, M. H.* . Growth and intestinal microbiota of Sabah giant grouper reared on food waste-based pellets supplemented with spirulina as a growth promoter and alternative protein source, Aquaculture Reports, 18, 100553 (2020)</li> <li>Man, Y. B., Lee, T. M., Hossain, MD. F., Tsang, Y. F., Wong, C. F., Chow, K. L. *, Food waste and single-cell proteins. In Food Waste as a Resource: Food, Feed Fertilizer, Fuel. World Scientific Publishing Co (<i>Under Review</i>)</li> </ol>
Project Leader	<b>Dr Tsang Yiu Fai, SES</b>
Project Title ( <i>Ref No.</i> )	Synergistic Mechanisms between Autotrophs and Heterotrophs in CO <sub>2</sub> Fixation using Non-photosynthetic Microbial Community (NPMC) and NPMC Structure Modification ( <i>IRS-12</i> )
Output:	<p>Journal/ book</p> <ol style="list-style-type: none"> <li>Cho, S. H., Jung, S., Park, Y. K., Lin, K. Y. A., Chen, W. H., Tsang, .Y. F.* &amp; Kwon, E. E. *, Biofuel Production as an Example of Virtuous Valorization of Swine Manure. <i>ACS Sustainable Chemistry &amp; Engineering</i>, 9, 13761-13772, [Cover story] (2021)</li> <li>Khan, M. T., Hossain, M. F., Man, Y. B., Wong, M. H., Kim, K. H. * &amp; Tsang, Y. F.*, Removal of Microplastics in conventional and advanced wastewater treatment technologies: Challenges, and opportunities, <i>Journal of Environment Management</i> (2022 Major Revision)</li> <li>Man, Y. B., Lee, T. M., Hossain, M. F., Tsang, Y. F., Wong, C. F. &amp; Chow, K. L.*, Food Waste and Single-cell Proteins. In Wong, M. H.,</li> </ol>

	<p>Purchase, D &amp; Dickson, N. (Eds.), <i>Food Waste as a Resource: Food, Feed, Fertilizer, and Fuel</i>, London, UK: World Scientific (in press) (2022 Book Chapter)</p> <p>External Grant</p> <p>1. GRF</p> <p>Inhibitory and Synergistic Effects of Microfibres and Microplastics and Biological Wastewater and Sludge Treatment and Their Mechanisms (Date of application: November 2020)</p>
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<b>Interdisciplinary Research Scheme (IDS)</b>	
Project Leader	<b>Dr Cheng Kwok Shing Gary, MIT</b>
Project Title ( <i>Ref No.</i> )	<i>Facilitating Theme-based Vocabulary Learning by Neural Topic Modeling based on Completely Random Measures (IDS-2)</i>
Output:	<p>Journal/ book</p> <ol style="list-style-type: none"> <li>Chen, X., Zou, D., Xie, H., &amp; Cheng, G., Twenty Years of Personalized Language Learning: Topic Modeling and Knowledge Mapping. <i>Educational Technology &amp; Society</i>, 24(1), 205-222. (2021)</li> <li>Chen, X., Xie, H., Li, Z., &amp; Cheng, G., Topic Analysis and Development in Knowledge Graph Research - A Bibliometric Review on Three Decades. <i>Neurocomputing</i>. DOI: 10.1016/j.neucom.2021.02.098. (2021)</li> </ol> <p>Conference</p> <ol style="list-style-type: none"> <li>The 58th Annual Meeting of the Association for Computational Linguistics (ACL 2020) Title: Neural Mixed Counting Models for Dispersed Topic Discovery</li> <li>The 5th International Symposium on User Modeling and Language Learning (UMLL 2021) Title: Investigating the Impact of Teacher Feedback on Content Revisions in EFL Students' Writing by Automated Tracking Approach</li> </ol> <p>External Grant</p> <p>1. GRF</p> <p>Automated Feedback for Elucidating Coherent Text – The AFFECT Project (Date of application: Nov 2020)</p>
Project Leader	<b>Dr Song Yanjie, MIT</b>
Project Title ( <i>Ref No.</i> )	Enhancing primary students' collaborative science inquiry through meta-cognitive scaffolding in a mobile learning environment ( <i>IDS-3</i> )

Output:	<p>Journal/ book</p> <ol style="list-style-type: none"> <li>Song, Y., Yang, Y., Cao, J., Loo, C. K., Mapping primary students' mobile collaborative inquiry-based learning behaviours in science collaborative problem solving via learning analytics during COVID-19. <i>International Journal of Educational Research (Under review)</i></li> </ol> <p>Conference</p> <ol style="list-style-type: none"> <li>The 26th Global Chinese Conference on Computers in Education (GCCCE 2022) Title: Enhancing primary students' collaborative problem-solving skills via a metacognitive scaffold embedded in a mobile app</li> </ol>
Project Leader	<b>Prof Ho Wing Kei, SES</b>
Project Title ( <i>Ref No.</i> )	Novel sulphur vacancies rich transition metal sulphide based photocatalysis for environmental purification ( <i>IDS-4</i> )
Output:	<p>Journal/ book</p> <ol style="list-style-type: none"> <li>Di, T., Xu, Q., Ho, W. K.*, Tang, H., Xiang, Q. &amp; Yu, J.*, Review on Metal Sulphide-based Z-scheme Photocatalysts, <i>ChemCatChem</i>, 11, 1394-1411 (2019)</li> <li>Ge, H., Xu, F., Cheng, B., Yu, J.* &amp; Ho, W. K.*, S-Scheme Heterojunction TiO<sub>2</sub>/CdS Nanocomposite Nanofiber as H<sub>2</sub>-Production Photocatalyst, <i>ChemCatChem</i>, 11 (24) 6301 (2019)</li> <li>Di, T., Cheng, B., Ho, W. K.*, Yu, J. &amp; Tang, H., Hierarchically CdS–Ag<sub>2</sub>S nanocomposites for efficient photocatalytic H<sub>2</sub> production. <i>Applied Surface Science</i>, 170, 196-204 (2019)</li> <li>Zhao, Y., Zhao, X., Lang, Z., Sun, H., Du, Z., Tan*, H., Qiu, T., Ho, W. K.*, Zhao, Z., &amp; Wang, Y., Reasonable design of Cu<sub>2</sub>MoS<sub>4</sub> heterophase junction for highly efficient photocatalysis. <i>Journal of Alloys and Compounds</i>, 826, 154076 (2020)</li> </ol>
Project Leader	<b>Prof So Wing Mui Winnie, SES</b>
Project Title ( <i>Ref No.</i> )	Science, Technology, Engineering and Mathematics (STEM) Education: Giving Voice to Teachers on notion of integration ( <i>IDS-6</i> )
Output:	<p>Journal/ book</p> <ol style="list-style-type: none"> <li>Chen, Y., Li, W. C., Chiu, W. K. S. &amp; So, W. M. W., Elementary Teachers' Perceptions of STEM Integration in Schools: a cluster analysis (<i>Under preparation</i>)</li> </ol> <p>External Grant</p> <ol style="list-style-type: none"> <li>PPR Professionals' Perspectives on Competences and Contexts for STEM Education Enhancing Policy for Innovation and Technology (I&amp;T)</li> </ol>

Development in Hong Kong (Date of application: July 2020)
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<b>Research Output Prize (ROP)</b>	
Project Leader	<b>Dr Pei Qing, SSC</b>
Project Title ( <i>Ref No.</i> )	The Strange Flight of the Peacock: Farmers' Atypical Northwesterly Migration from Central China, 200BC-1400AD ( <i>ROP-4</i> )
Output:	<p>Journal/ book</p> <ol style="list-style-type: none"> <li>1. Pei, Q., Division of Hunan and Hubei Provinces in the Qing Dynasty: Pragmatism in the unity of heaven and governance. <i>The Professional Geographer</i>, 72(2) : 283-296 (2020)</li> <li>2. Pei, Q., G. Li, B. Winterhalder, M. Lowman, Regional patterns of pastoralist migrations under the push of reduced precipitation in imperial China. <i>Global Ecology and Biogeography</i>, 29(3) : 433-443 (2020)</li> <li>3. Pei, Q., D. D. Zhang, J. Fei &amp; P. Y. Hui, Demographic crises of different climate phases in preindustrial Northern Hemisphere. <i>Human Ecology</i>, 48: 519-527 (2020)</li> <li>4. D. D. Zhang, Pei, Q., H. F. Lee, Jim, C. Y., Li, G., Zhang, M., Wu, Z., Wang, L, Yue, R. P. H. &amp; Zhang, S., Climate change fostered cultural dynamics of human resilience in Europe in the past 2500 years. <i>Science of the Total Environment</i>, 744: 140842 (2020)</li> <li>5. O. Damette, S. Goutte &amp; Pei, Q *. Climate and Nomadic Migration in a Nonlinear World: Evidence of the Historical China. <i>Climate Change</i>, 163: 2055-2071 (2020)</li> <li>6. D. Degroot, K. Anchukaitis, M. Bauch, Jakob Burnham, F. Carnegy, J. Cui, K. de Luna, P. Guzowski, G. Hambrecht, H. Huhtamaa, A. Izdebski, K. Kleemann, E. Moesswilde, N. Neupane, T. Newfield, Q. Pei, E. Xoplaki &amp; N. Zappia, Towards a rigorous understanding of societal responses to climate change. <i>Nature</i>, 591: 539-550 (2021)</li> </ol> <p>External Grant</p> <ol style="list-style-type: none"> <li>1. UGC GRF Climate change and Agrarian -nomadic Migration across the Great Wall during Little Ice Age (Date of application: June 2021)</li> </ol>