个人简历

个人资料

姓名：申培亮　　**性别：**男

出生年月：1988.02　　**学历：**博士

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教育背景

2015.9~ 2018.6 武汉理工大学，力学，工学博士
2010.9~2013.6 武汉理工大学，建筑材料与工程，工学硕士
2006.9~2010.6 武汉理工大学，无机非金属材料工程，工学学士

工作经历

1. 2022.2~今 香港理工大学(QS 排名 65)，土木及环境工程学系，助理教授(研究)
2. 2020.3~2022.2 香港理工大学(QS 排名 65)，土木及环境工程学系，博士后研究员
3. 2019.3~2020.3 香港理工大学(QS 排名 65)，土木及环境工程学系，助理研究员，
4. 2013.6-2015.7 中电光谷联合控股有限公司（土木建筑工程师/项目经理）；2018.7-2019.2 武汉工程大学 (教师/博后);

学术兼职

1. 香港理工大学 CO2 与固废联合研究中心，执行主任
2. 中国硅酸盐学会固废与生态材料分会固废矿化召集人
3. 《International Journal of Minerals, Metallurgy & Materials》，青年编委
4. 国际结构与材料实验室联合会(RILEM)，高级会员
5. 香港混凝土协会（HKCI），Fellow
6. 美国土木工程师协会会员

学术荣誉

1. 香港绿色创新科技大奖银奖
2. 第十届粤港澳大湾区可持续发展研讨会优秀论文奖
3. 第九届水泥混凝土国际会议最佳海报奖（ISCC）
4. 第二届全国混凝土设计大赛全国三等奖
5. 博士和硕士研究生国家奖学金;
6. 武汉理工大学“优秀毕业研究生（硕士和博士）”及武汉理工大学“优秀学位论文（硕士和博士）”

科研项目

1. 2024-2026，国家自然科学基金国家高层次人才(青年项目)，低碳混凝土材料，300 万元，主持
2. 2023-2025 科技创新基金, Development of dynamic carbonation technologies for precast concrete using flue gas, 550 万元，主持;
3. 2023-2025 科技创新基金, Comprehensive utilization of calcium carbonate solid waste, 300 万元，主持;
4. 2023-2026 香港旗舰级资助计划-优配研究基金(RGC-GRF), Development of sustainable reactive calcium carbonate cement from recycled concrete fines, 113 万元，主持;
5. 2024-2026 国家自然科学基金，基于晶相定向调控的废弃混凝土微粉碳化资源化基础研究，30 万元，主持;

6. 2023-2024 碳中和基金(RCRE), High-value Calcium Carbonate Produced from Fast Carbonation of Recycled Concrete Fines, 25 万元，主持;
7. 2022-2024 教育资助委员会启动基金, Preparation of eco-friendly concrete using carbonation modified incineration bottom ash, 25 万元，主持;
8. 2020-2022 香港研究资助局(RGC-PDF), Reuse of municipal solid waste incineration bottom ash as aggregate in concrete, 72 万元，主持;

代表性论文

在国内外重要学术期刊发表论文 70 余篇，其中第一和通讯作者论文 32 篇，具体如下[1-32]：

[1] **Shen P**, Jiang Y, Zhang Y, Liu S, Xuan D, Lu J, et al. Production of aragonite whiskers by carbonation of fine recycled concrete wastes: An alternative pathway for efficient CO2 sequestration. Renewable and Sustainable Energy Reviews. 2023;173:113079.

[2] Peng L, **Shen P***, Poon C-S, Zhao Y, Wang F. Development of carbon capture coating to improve the durability of concrete structures. Cement and Concrete Research. 2023;168:107154.

[3] **Shen P**, Gu Z, Lu J, Zhang Y, Jiang Y, Xuan D, et al. Preparation of reactive urchin-like recycled concrete aggregate by wet carbonation: Towards improving the bonding capability of the interfacial transition zone in recycled aggregate concrete. Cement and Concrete Composites. 2023;143:105235.

[4] Peng L, Jiang Y, Ban J, Shen Y, Ma Z, Zhao Y, **Shen P***, Poon C-S. Mechanism underlying early hydration kinetics of carbonated recycled concrete fines-ordinary portland cement (CRCF-OPC) paste. Cement and Concrete Composites. 2023;144:105275.

[5] Jiang Y, Ma Z, **Shen P***, Poon CS. 废弃混凝土碳化资源化技术研究进展. Kuei Suan Jen Hsueh Pao/Journal of the Chinese Ceramic Society. 2023;51:2433-45.

[6] Shen Y, Jiang L, **Shen P***, Peng L, Poon C-s, Wang F. Development of photocatalytic carbonation coating for concrete: Enhancement of air quality and sequestration of CO2. Cement and Concrete Composites. 2023:105308.

[7] **Shen P**, Zhang Y, Jiang Y, Zhan B, Lu J, Zhang S, et al. Phase assemblance evolution during wet carbonation of recycled concrete fines. Cement and Concrete Research. 2022;154:106733.

[8] Jiang Y, Li L, Lu J-x, **Shen P***, Ling T-C, Poon CS. Mechanism of carbonating recycled concrete fines in aqueous environment: The particle size effect. Cement and Concrete Composites. 2022;133:104655.

[9] Jiang Y, Li L, Lu J-x, **Shen P***, Ling T-C, Poon CS. Enhancing the microstructure and surface texture of recycled concrete fine aggregate via magnesium-modified carbonation. Cement and Concrete Research. 2022;162:106967.

[10] **Shen P**, Lu J, Zhang Y, Jiang Y, Zhang S, Poon CS. Preparation aragonite whisker-rich materials by wet carbonation of cement: Towards yielding micro-fiber reinforced cement and sequestrating CO2. Cement and Concrete Research. 2022;159:106891.

[11] Jiang Y, **Shen P***, Poon CS. Improving the bonding capacity of recycled concrete aggregate by creating a reactive shell with aqueous carbonation. Construction and Building Materials. 2022;315:125733.

[12] Lam WL, **Shen P***, Cai Y, Sun Y, Zhang Y, Poon CS. Effects of seawater on UHPC: Macro and microstructure properties. Construction and Building Materials. 2022;340:127767.

[13] **Shen P**, Lu J-X, Zheng H, Liu S, Sun Poon C. Conceptual design and performance evaluation of high strength pervious concrete. Construction and Building Materials. 2021;269:121342.

[14] Liu S, **Shen P***, Xuan D, Li L, Sojobi A, Zhan B, et al. A comparison of liquid-solid and gas-solid accelerated carbonation for enhancement of recycled concrete aggregate. Cement and Concrete

Composites. 2021;118:103988.

[15] **Shen P**, Sun Y, Liu S, Jiang Y, Zheng H, Xuan D, et al. Synthesis of amorphous nano-silica from recycled concrete fines by two-step wet carbonation. Cement and Concrete Research. 2021;147:106526.

[16] Jiang Y, **Shen P***, Poon CS. Improving the bonding capacity of recycled concrete aggregate by creating a reactive shell with aqueous carbonation. Construction and Building Materials. 2021:125733.

[17] Liu S, Zhang L, Xuan D, **Shen P***, Zhu J, Guan X, et al. Enhanced carbonation reactivity of wollastonite by rapid cooling process: Towards an ultra-low calcium CO2 sequestration binder. Construction and Building Materials. 2021;299:124336.

[18] **Shen P**, Lu J-X, Lu L, He Y, Wang F, Hu S. An alternative method for performance improvement of ultra-high performance concrete by internal curing: Role of physicochemical properties of saturated lightweight fine aggregate. Construction and Building Materials. 2021;312:125373.

[19] **Shen P**, Lu L, Wang F, He Y, Hu S, Lu J, et al. Water desorption characteristics of saturated lightweight fine aggregate in ultra-high performance concrete. Cement and Concrete Composites. 2020;106:103456.

[20] **Shen P**, Lu L, He Y, Wang F, Lu J, Zheng H, et al. Investigation on expansion effect of the expansive agents in ultra-high performance concrete. Cement and Concrete Composites. 2020;105:103425.

[21] **Shen P**, Zheng H, Liu S, Lu J-X, Poon CS. Development of high-strength pervious concrete incorporated with high percentages of waste glass. Cement and Concrete Composites. 2020;114:103790.

[22] **Shen P**, Lu J-X, Zheng H, Lu L, Wang F, He Y, et al. Expansive ultra-high performance concrete for concrete-filled steel tube applications. Cement and Concrete Composites. 2020;114:103813.

[23] **Shen P**, Zheng H, Xuan D, Lu J-X, Poon CS. Feasible use of municipal solid waste incineration bottom ash in ultra-high performance concrete. Cement and Concrete Composites. 2020;114:103814.

[24] Lu J-X, **Shen P（共 1）**, Zheng H, Zhan B, Ali HA, He P, et al. Synergetic recycling of waste glass and recycled aggregates in cement mortars: Physical, durability and microstructure performance. Cement and Concrete Composites. 2020;113:103632.

[25] **Shen P**, Lu L, He Y, Wang F, Hu S. The effect of curing regimes on the mechanical properties, nano-mechanical properties and microstructure of ultra-high performance concrete. Cement and Concrete Research. 2019;118:1-13.

[26] **Shen P**, Liu Z. Study on the hydration of young concrete based on dielectric property measurement. Construction and Building Materials. 2019;196:354-61.

[27] **Shen P**, Lu L, He Y, Rao M, Fu Z, Wang F, et al. Experimental investigation on the autogenous shrinkage of steam cured ultra-high performance concrete. Construction & Building Materials. 2018;162:512-22.

[28] **Shen P**, Lu L, Chen W, Wang F, Hu S. Efficiency of metakaolin in steam cured high strength concrete. Construction & Building Materials. 2017;152:357-66.

[29] **Shen P**, Lu L, He Y, Wang F, Hu S. Hydration of quaternary phase-gypsum system. Construction & Building Materials. 2017;152:145-53.

[30] **Shen P**, Chen W, Lu L, Geng H, Li Q. Effect of aggregate exposing and curing agent on the performance of exposed aggregate concrete. Construction & Building Materials. 2017;156:675-83.

[31] **Shen P**, Lu L, He Y, Wang F, Hu S. Hydration monitoring and strength prediction of cement-based

materials based on the dielectric properties. Construction & Building Materials. 2016;126:179-89.

[32] Jiang Y, Peng L, Ma Z, Lu J-x, **Shen P***, Poon CS*. Enhancing the treatment efficiency of recycled concrete fines with aqueous carbonation. Cement and Concrete Research. 2023;174:107338.

授权专利和专利申请情况

1) **申培亮**，陆建鑫，潘智生，一种利用废弃混凝土砂粉制备纳米二氧化硅的方法, 202110231082.0
2) **申培亮**，陆建鑫，潘智生，一种水泥基材料碳化再利用方法和一种碳酸钙晶须材料，202110558982.6
3) 水中和，陈伟，**申培亮**，一种基于介电常数的新拌混凝土拌合物含水量测定方法及装置，ZL2011101272419
4) 陈伟，**申培亮**，一种高性能混凝土露石剂及其制备和施用方法, ZL2013101739389
5) 王发洲，穆元冬,**申培亮**等 一种高早强、高抗蚀硅酸盐水泥及其制备方法, ZL201610407168.3

国内和国际合作交流

1. 第十届粤港澳大湾区可持续发展研讨会，广东省人民政府、香港特区政府， 大会主旨报告
2. International Virtual Symposium - Advanced Concrete Technology，马来西亚大学，大会报告
3. 3rd Sustainable Waste Management Conference，世界化学工程协会，邀请报告
4. 5th International Conference on Accelerated Carbonation，世界化学工程协会，邀请报告
5. The 10th International Symposium on Cement and Concrete，华南理工大学，邀请报告