H2020 Marie Sklodowska-Curie RISE Project: TRAC – Tailor-made Recycled Aggregate Concretes

Members:

1. UoP (University of Plymouth, UK) – Coordinator, Leader of WP1, 5 & 6
2. CHALMERS (Chalmers University of Technology, Sweden) – Leader of WP2, 3, & 4
3. PNRU (Phranakhon Rajabhat University, Thailand) – Co-leader of WP6
4. TDTU (Ton Duc Thang University, Vietnam) – Co-leader of WP3
5. SZU (Shenzhen University, China) – Co-leader of WP2

TRAC Newsletter – Jun 2020 & Sep 2020 & Dec 2020

Management

1. Deliverable 2.2, 2.3 and 3.2 have been submitted and approved.
2. The periodic report has been submitted and approved in Nov 2020.
3. The second workshop of the project is going to be held online on 30th Dec 2020.

Exchange

1. Mr Qi Ye (UoP) visited SZU from 20th Mar 2020 to 10th Apr 2020, from 18th May 2020 to 19th Jun 2020, and from 1st Sep 2020 to 30th Sep 2020.
2. Mr Liming Huang visited SZU from 1st Feb 2020 to 9th Aug 2020.

Research Activities

1. Researchers at PNRU worked on the review of improving the quality of recycled concrete aggregates (RCAs), and cost analysis of the production of the ready-mixed recycled aggregate concretes (RACs).
2. Researchers at PNRU and UoP worked on the edition of a new book 'Principles of cement and concrete composites'.
3. Researchers at UoP worked on the mechanical properties of RACs with fly ash and ggbs, and the durability of RACs under marine environment.
4. Researchers at Chalmers and SZU worked on the development of a new method for fresh concrete and alkali-activated techniques for ggbf slag as SCM, and on testing Chinese fly ash from MSWI (municipal solid waste incineration) for possible application as SCM in the concrete with RCA.
5. Researchers at TDTU worked on the mechanical properties of geopolymer recycled aggregate concrete (GRAC), and influences of different parameters

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(RCA, geopolymer composition, superplasticizer) on the workability and mechanical properties of GRAC.

Publications

1. Makul, Natt. (2020) Cost-benefit analysis of the production of ready-mixed high-performance concrete made with recycled concrete aggregate: A case study in Thailand, Heliyon. https://doi.org/10.1016/j.heliyon.2020.e04135.
2. Makul, Natt. (2020) Effect of low-pressure microwave-accelerated curing on the drying shrinkage and water permeability of Portland cement pastes. Case Studies in Construction Materials. https://www.sciencedirect.com/science/article/pii/S2214509520300309?via%3Dihub.
3. Makul, Natt. (2020) Advanced smart concrete – A review of current progress, benefits and challenges, Journal of Cleaner Production, 274. https://doi.org/10.1016/j.jclepro.2020.122899.
4. H.-B. Le, Q.-B. Bui, Recycled aggregate concretes – A state-of-the-art from the microstructure to the structural performance, *Construction and Building Materials* 257 (2020) 119522, https://doi.org/10.1016/j.conbuildmat.2020.119522.
5. T. M. Pham, W. Chen, A. M. Khan, H. Hao, M. Elchalakani, T. M. Tran, Dynamic compressive properties of lightweight rubberized concrete, *Construction and Building Materials* 224 (2019) 584–599, https://doi.org/10.1016/j.conbuildmat.2019.117705.
6. Wei Liu, Yongqiang Li, Shifa Lin, Luping Tang, Zhijun Dong, Feng Xing, Biqin Dong, Shuxian Hong*. Changes in chemical phases and microscopic characteristics of fly ash blended cement pastes in different CO2 concentrations[J]. Construction and Building Materials 2020, 257:1-9, https://doi.org/10.1016/j.conbuildmat.2020.119598
7. Wei Liu*, Lin Lin, Shuping Wang, Xiaoqin Peng, Bobo Wu, Keke Sun, Lu Zeng. Setting and Hardening Behaviour of Alkali-Activated Landfilled Fly Ash–Slag Binder at Room Temperature[J].Materials 2020,13(14):1-15, https://doi.org/10.3390/ma13143130
8. Wei Liu, Shifa Lin, Yongqiang Li, Wujian Long*, Zhijun Dong, Luping Tang. Slag Blended Cement Paste Carbonation under Different CO2 Concentrations-Controls of Mineralogy and Morphology of Products .Materials 2020,13(15):1-12, https://doi.org/10.3390/ma13153404

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Attachment:

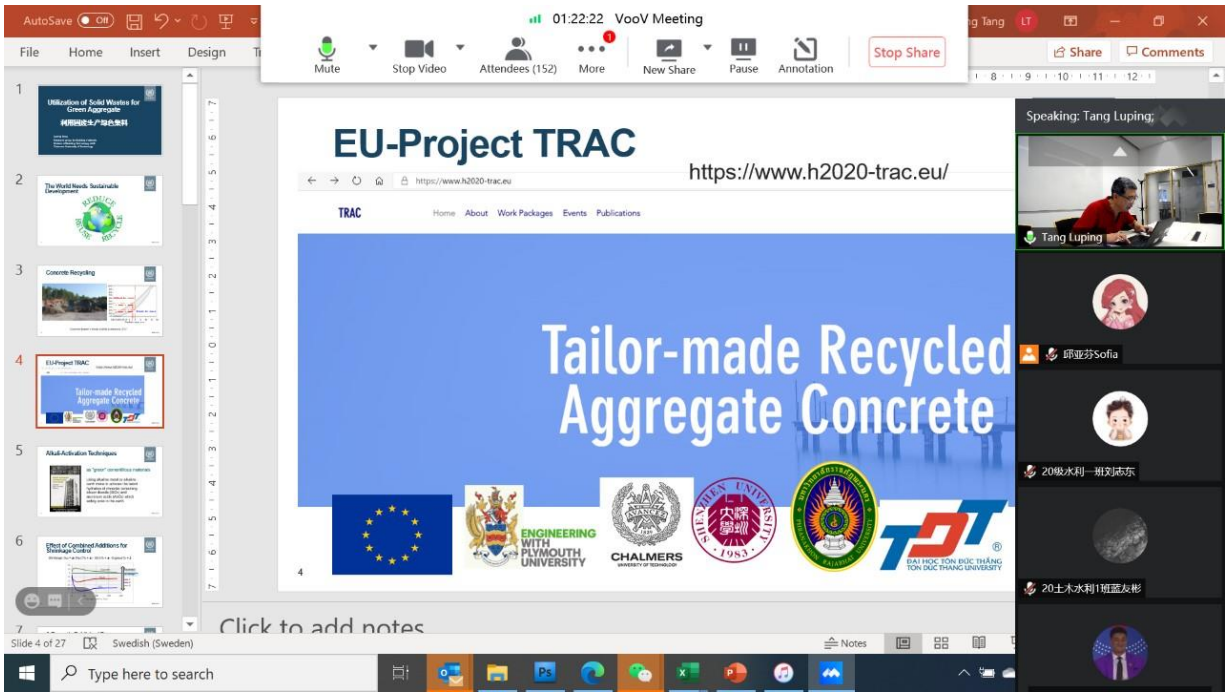

Fig. 1 Public lecture given by Prof Luping Tang at SZU on 18th Dec 2020

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