

Net Zero Concrete

Investigation on Carbon Uptake Potential of Lightweight Concrete Structures

Student support is sought for the project Investigation on Carbon Uptake Potential of Lightweight Concrete Structures in the framework of the IntCDC Blue Sky Project Grant.

The project investigates the possibility of achieving carbon neutrality of lightweight concrete structures through accelerated carbonation. The focus is on finding a combination of material, production, and structural parameters to create load-bearing structures capable of being fully carbonated. It is planned to design and produce filigree structures with a favorable surface/volume ratio using specifically modified concrete mixes, and subject them to accelerated carbonation using captured CO₂.

Currently, the accelerated carbonation setup is being assembled and the process is being validated on the series of carbocation tests under various process parameters.



Work tasks:

- producing concrete samples with various mixes using classical formwork techniques and special sand formwork system, developed in ILEK;
- running the accelerated carbonation procedure in the developed reactor;
- process monitoring, process parameters studies;
- evaluation of carbonation results for various parameter groups.

Skills:

- Basic knowledge in digital design (Rhino/ Grasshopper) is beneficial
- Basic knowledge of Arduino is beneficial
- Basic knowledge on concrete technology and rheology is beneficial
- Very good English or German skills
- Independent work

If you are interested, please apply to:

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