

Webinar: **Piling Noise Reduction by Magnetic Tuned Mass Damper (MTMD)**

Speaker: Mr. Wylog Wong (Design Manager, Acoustics Innovation Ltd)
Mr. Allen Wong (Environmental Engineer, Build King Civil Engineering Ltd)

Date: 16 June 2022 (Thu)

Time: 19:00 to 20:30 (Reception at 18:45)

Webinar Platform: ZOOM

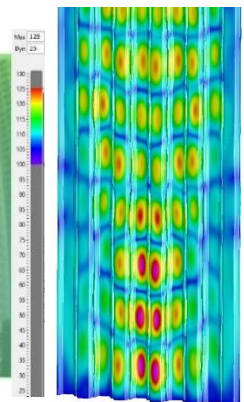
Webinar Highlights:

The construction of sheet pile wall is generally driven by vibratory hammer, which is noisy and affects nearby residential premises if not mitigated. Noise from resonant vibrations of the sheet piles could be reduced by vibration dampers, while its practicality depends on fast and safe installation process. For the noise mitigation of the basement construction of **West Sewage Pump Station (WSPS) of the Tung Chung New Town Extension - Major Infrastructure Works in Tung Chung East**, Magnetic Tuned Mass Damper (MTMD) is invented to enabling a fast and safe magnetic installation in Hong Kong. Total 6 sets of 5m long MTMD were installed on 12m high x 4m wide sheet pile wall. Each set of MTMD weights less than 20kg and can be installed in a few minutes for 6 sets.

In the invention process, acoustic imaging and finite element analysis (FEA) are used to identify resonance mode characteristics and distributions for efficient vibration energy absorption design. MTMD was tuned to absorb vibration energy from 630 Hz to 1250 Hz by adjusting the stiffness of the resilient layer and size of oscillation masses. On-site measurement result shows that the Pile TMDs achieved ~9-14dB vibration reduction at tuned frequency and ~7dB(A) overall noise reduction.

The seminar will brief the invention process and share hands-on experiences with on the following areas:

- Noise source identification by acoustic camera
- FEA for resonance analysis
- Sheet Pile TMD mechanism and design features
- On-site noise and vibration reduction performance
- Project background and site constraints
- User experience on Sheet Pile TMD



Registration

Please complete the online registration by 14 June 2022 (Tuesday) via <https://forms.gle/7FhfetbH41NbfPdB6>. The seminar is free of charge for HKIOA and supporting organizations' member.

CPD Certificate in electronic format will be provided via email after the seminar.

