Infrastructure Materials (IM): Analysis, behaviour, characterisation and value chains

Engineering materials include natural resources and man-made materials such as soil, water, cemented soil, geofoam, concrete, steel, composite materials and recycled concrete. The performance of an infrastructure system is largely dependent on the properties of associated engineering materials.

The Infrastructure Materials program in IIE covers the development, application, characterisation, recycling, remediation, disposal, modelling and monitoring of engineering materials as part of infrastructure design, development and management. It is a major supporting program of research in IIE.

Major research areas of this program include (but are not limited to) high performance materials, materials at high strain rates and sustainable materials.

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Infrastructure Health Monitoring (IHM): Structural health monitoring techniques

Infrastructure Health Monitoring (IHM) is defined as an interdisciplinary area of research focused on developing and applying sensing systems to monitor the performance of infrastructure systems such as bridges, buildings, dams, pipe networks and roads and to evaluate their health state. This program in IIE includes material characterisation, sensor development, measurement of infrastructure system integrity using sensor technologies for global (e.g. vibration-based methods) and local (e.g. non-destructive testing and evaluation techniques) structural health monitoring. In addition, this theme incorporates imaging and signal processing techniques, smart structures and wireless sensor networks. Multi-disciplinary research of this program is conducted by specialists with expertise in electrical and computer engineering, civil/structural engineering and mechanical engineering.

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