Co-organisers:

香港資優教育學苑
The Hong Kong Academy for Gifted Education

THE HONG KONG YOUNG ACADEMY OF SCIENCES
香 港 青 年 科 學 院

Supporting Organisation:

教育局
Education Bureau

Talk Series on Emerging Technologies - Science, Opportunities & Challenges 2021

(5) New Materials in Transportation and Construction

(E1TEC005T)

- Speakers:
  Prof Mingxin HUANG (HKU)
  Dr Denvid LAU (CityU)

- Date & Time:
  23 October 2021 (Sat), 3p.m.- 5p.m.
- Venue: Online via Zoom
- Target Participants:
  - Secondary School Teachers of Science
  - S.1-S.6 Secondary School Students Only
- Language: English

- Registration:

  HKAGE members: Click here

  Non-HKAGE members: Click here

  Teachers (via EDB): Click here

  Application will be available soon

  For more details and registration, please visit:

  https://www.hkage.org.hk/en/talk

This talk is about the new advanced materials developed recently which can be applied in our daily application in transportation and construction. In the first half of the talk, such application in transportation will be discussed. Transportation vehicles including passenger cars, buses and trucks are the second largest source of greenhouse gas emission. One effective and economical way to reduce greenhouse gas emission in the transportation industry is by reducing the weight of vehicles. For instance, a 10% reduction in the weight of a passenger car can reduce greenhouse gas emission by about 6-8%. However, the weight reduction shall not be at the cost of passenger safety, in particular, in car crash incidents. To achieve weight reduction while maintaining high safety standards, lightweight materials are widely used. The most commonly used low-cost lightweight materials are advanced high strength steels (AHSS). The high strength of AHSS allows the fabrication of thinner structural components and protects the passengers during unexpected crash incidents. This talk will introduce the application of AHSS in the global automotive industry.

In the second half of this talk, application in construction will be illustrated. Advanced cementitious materials and composite systems, which have been developed in view of the advancement of nanotechnology, will be discussed. Examples of green concrete and fibre-reinforced polymers (FRP) will be the focus in this part. It is envisioned that these new materials, which are much more durable than traditional construction materials, will enable sustainable development in the built environment.