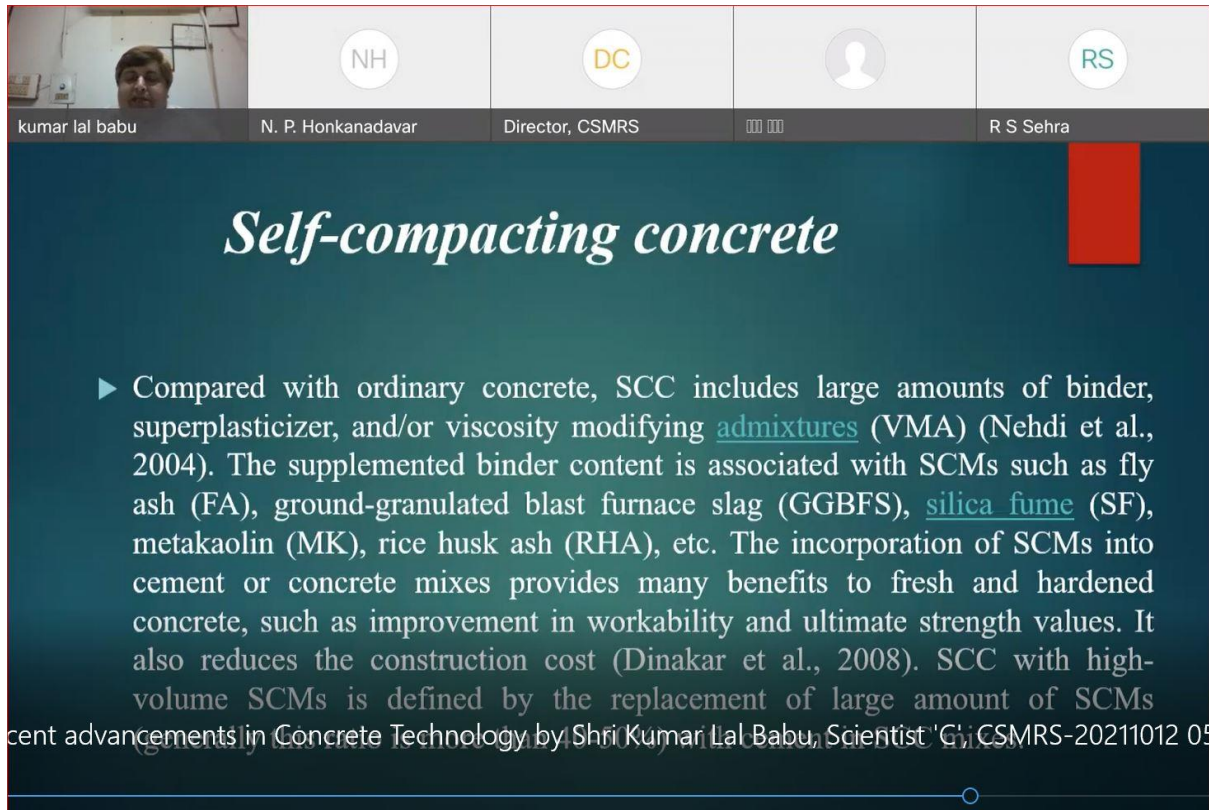


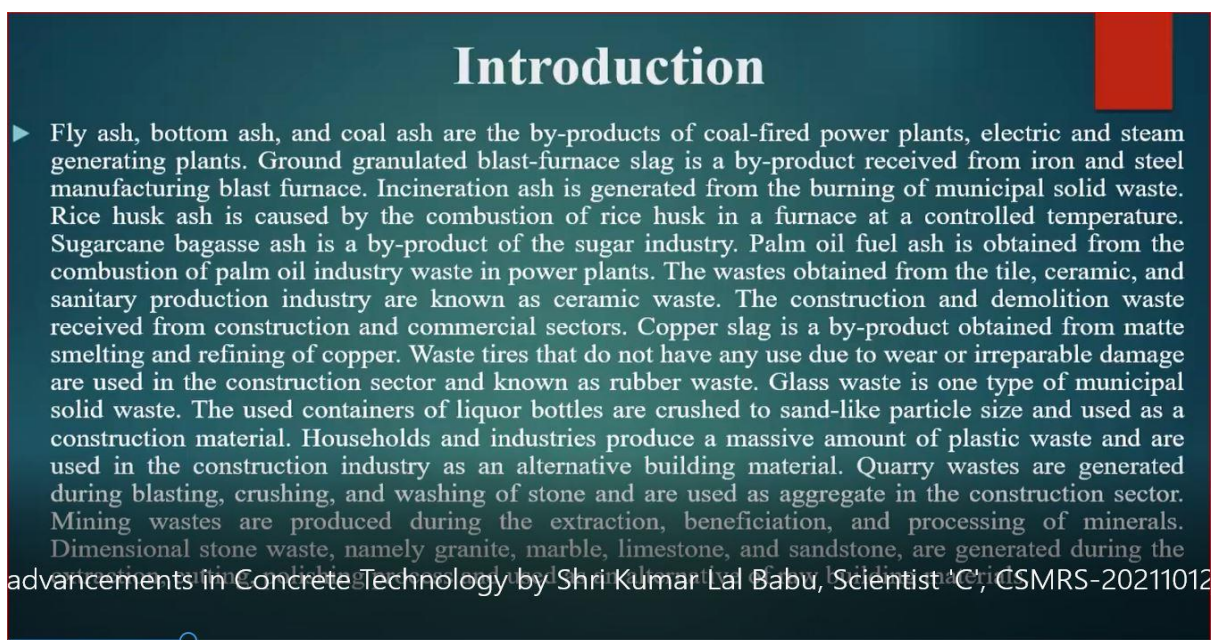
आजादी का अमृत महोत्सव (India@75) कार्यक्रम के दौरान केन्द्रीय मृदा एवं सामग्री अनुसंधानशाला में "कंक्रीट प्रौद्योगिकी में हाल की प्रगति" के विषय पर श्री कुमार लाल बाबू वैज्ञानिक 'डी' द्वारा ऑनलाइन भाषण दिया गया। [#आजादीकाअमृतमहोत्सव](#)



The screenshot shows a Zoom meeting interface with four participants: kumar lal babu, N. P. Honkanadavar, Director, CSMRS, and R S Sehra. The main content is a presentation slide with a dark blue background and a red vertical bar on the right. The slide title is "Self-compacting concrete".

► Compared with ordinary concrete, SCC includes large amounts of binder, superplasticizer, and/or viscosity modifying [admixtures](#) (VMA) (Nehdi et al., 2004). The supplemented binder content is associated with SCMs such as fly ash (FA), ground-granulated blast furnace slag (GGBFS), [silica fume](#) (SF), metakaolin (MK), rice husk ash (RHA), etc. The incorporation of SCMs into cement or concrete mixes provides many benefits to fresh and hardened concrete, such as improvement in workability and ultimate strength values. It also reduces the construction cost (Dinakar et al., 2008). SCC with high-volume SCMs is defined by the replacement of large amount of SCMs

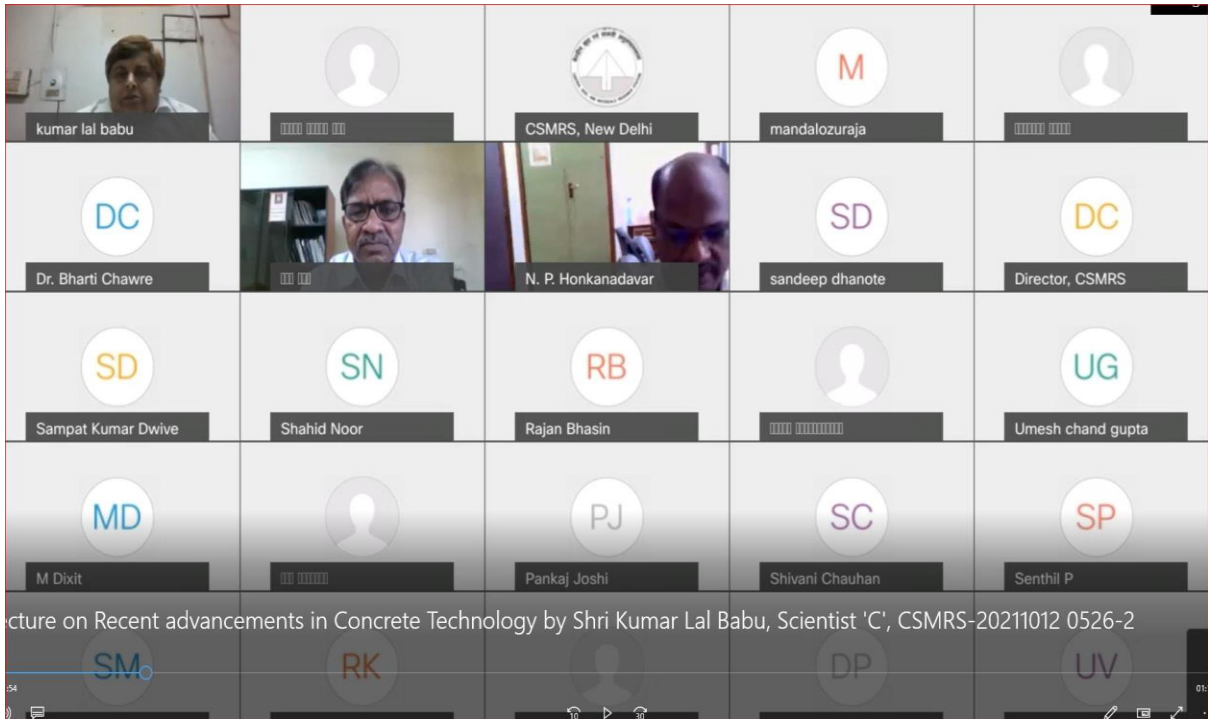
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The screenshot shows a Zoom meeting interface with a presentation slide titled "Introduction". The slide has a dark blue background and a red vertical bar on the right.

► Fly ash, bottom ash, and coal ash are the by-products of coal-fired power plants, electric and steam generating plants. Ground granulated blast-furnace slag is a by-product received from iron and steel manufacturing blast furnace. Incineration ash is generated from the burning of municipal solid waste. Rice husk ash is caused by the combustion of rice husk in a furnace at a controlled temperature. Sugarcane bagasse ash is a by-product of the sugar industry. Palm oil fuel ash is obtained from the combustion of palm oil industry waste in power plants. The wastes obtained from the tile, ceramic, and sanitary production industry are known as ceramic waste. The construction and demolition waste received from construction and commercial sectors. Copper slag is a by-product obtained from matte smelting and refining of copper. Waste tires that do not have any use due to wear or irreparable damage are used in the construction sector and known as rubber waste. Glass waste is one type of municipal solid waste. The used containers of liquor bottles are crushed to sand-like particle size and used as a construction material. Households and industries produce a massive amount of plastic waste and are used in the construction industry as an alternative building material. Quarry wastes are generated during blasting, crushing, and washing of stone and are used as aggregate in the construction sector. Mining wastes are produced during the extraction, beneficiation, and processing of minerals. Dimensional stone waste, namely granite, marble, limestone, and sandstone, are generated during the

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Fiber-reinforced concrete

- ▶ Fiber Reinforced Concrete is a composite material consisting of fibrous material which increases its structural integrity. It includes mixtures of cement, mortar or concrete and discontinuous, discrete, uniformly dispersed suitable fibers. Fibers are usually used in concrete to control cracking due to plastic shrinkage and to drying shrinkage. They also reduce the permeability of concrete and thus reduce the bleeding of water.
- ▶ **Advantages of Fibre-reinforced concrete**
 - Fibers reinforced concrete may be useful where high tensile strength and reduced cracking are desirable or when conventional reinforcement cannot be placed
 - It improves the impact strength of concrete, limits the crack growth and leads to a greater strain capacity of the composite material
 - For industrial projects, macro-synthetic fibers are used to improve concrete's durability. Made from synthetic materials, these fibers are long and thick in size and may be used as a replacement for bar or fabric reinforcement
 - Adding fibers to the concrete will improve its freeze-thaw resistance and help keep the concrete strong and

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