



Recent advances on high performance bio-based cement composites

10.15 **Saluti istituzionali ed introduzione**

Prof. Ing. Fernando Fraternali

10.30 **Recent advances on high performance
bio-based cement composites**

Prof. Romildo Dias Toledo Filho



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summary

In recent years, a great deal of interest has been created worldwide on the potential applications of bio-based materials such as bamboo, vegetable fibres and bio-aggregates in the construction sector.

These materials have been considered promising materials because they are abundant, renewable and biodegradable, low cost and energy saving, and present high specific strength and stiffness.

There are, however, important questions regarding the use of such materials in construction that need to be responded:

- (i) How to improve the durability of bio-based building materials and systems?*
- (ii) How the matrix, reinforcement and processing techniques need to be tailored to allow the production of high-performance bio-based composites and bio-concrete?*
- (iii) Can vegetable fibers acts as a self-healing conveyer in ultra-high strength steel fibre reinforced concrete?*
- (iv) How Climate Change can be mitigated by using bio-based building materials in Construction?*

In this presentation the above questions will be responded based on the results of the research activities carried out at the Federal University of Rio de Janeiro-Brazil in the last few years.