

Faster and cheaper entry into the textile reinforced concrete market possible in the future – ITA-doctoral candidate Martin Scheurer wins Hanns Voith Foundation Prize 2019 in the "New Materials" category

ITA-doctoral candidate Martin Scheurer was awarded the Hanns Voith Foundation Prize 2019 in the "New Materials" category on June 28, 2019 in Heidenheim, Germany, with prize money of EURO 5,000. Mr Scheurer receives the prize for his master thesis "Development of a method for evaluating the suitability of textiles for use in textile reinforced concrete".

In his thesis, Mr Scheurer investigates how textiles can be used in textile reinforced concrete.

Shorter and faster entry into the textile concrete market possible

So far, testing the suitability of new textiles for use in textile reinforced concrete has been very time-consuming and expensive: The current approval process for textiles in textile concrete requires an intensive testing program of over 50 different tests. With the method developed by Mr Scheurer, only three different tests are necessary to make a good initial assessment of the suitability of textiles for use in textile reinforced concrete. Mr Scheurer now enables companies to find an initial assessment of the suitability of their textiles for use in textile reinforced concrete within a period of approximately one month, which is relatively inexpensive.

Target group for this newly developed method are textile manufacturers who want to enter the growing textile reinforced concrete market. The use for the textile manufacturers is the lowering of market entrance barriers. An enterprise can find out now fast whether the entrance into the textile reinforced concrete market with existing textiles is possible.

Background

Textile reinforced concrete is a new material with the potential to revolutionize the construction industry. In textile reinforced concrete, the traditional steel reinforcement is replaced by high-performance textiles made of glass or carbon fibres. The use of textile reinforced concrete as a material makes thin concrete elements possible, since the textiles, unlike steel, do not rust and therefore much less concrete has to be used as protection against corrosion. This saves material, weight and carbon dioxide. Since cement production for the production of concrete causes three times as much carbon dioxide as global aviation, at 6.5 percent of CO₂-emissions (source: <https://www.bauen-neu-denken.de/en/>), the use of textile concrete is considered to be highly environmentally friendly.

In addition, the use of textile concrete allows greater freedom of design due to the simple formability of the textiles and thus offers new architectural possibilities.

Already in 2017 and 2016, the Hanns Voith Foundation Prize was awarded to ITA-doctoral- candidates in the category "New Materials". ITA-doctoral candidate Magdalena Kimm received the award in 2017, ITA-doctoral candidate Inga Noll in 2016.

Since 2013, the Hanns Voith Foundation has awarded the Hanns Voith Foundation Prizes annually to outstanding and innovative final theses of universities and part-time institutions awarding a Master's or Diplom degree. From the 23 master theses submitted, the jury chaired by Prof. Dr Dr e.h. Dr h.c. mult. Sigmar Wittig has awarded five prize winners for their outstanding work in the fields of drive technology, digital ventures, new materials, hydropower, and economics for the seventh time in a row in 2019.

The final thesis must demonstrate a thematic reference to the Group or functional areas of the Voith Group. The universities entitled to submit proposals must assess the thesis as worthy of an award.