

Kindly register using the link

[https://wis.ntu.edu.sg/pls/webexe88/REGISTER\\_NTU.REGISTER?EVENT\\_ID=OA22101218204611](https://wis.ntu.edu.sg/pls/webexe88/REGISTER_NTU.REGISTER?EVENT_ID=OA22101218204611)



Transport Research Centre (NTU-LTA TRC@NTU)

**PDU: TBC**

**Public Lecture**

**Detailing Concrete Structures with the help of Strut and Tie Models**

**Prof. Dr.-Ing Balthasar Novák**

*Deputy Director*

*Institute for Lightweight Design, Design and Construction  
University of Stuttgart, Germany*

**Date: Thursday, 20 October 2022**

**Time: 10:00 am – 4:00 pm**

**Venue: Lecture Theatre 5**

**Public Lecture Abstract**

Since the pioneering work of Emil Mörsch (Professor at the University of Stuttgart from 1916 to 1948) in the early twentieth century, different models have been used to understand the behaviour of reinforced concrete elements subjected to bending and shear and torsion. The ideas of Mörsch and his successor Fritz Leonhardt (Professor at the University of Stuttgart from 1957 to 1974) were generalized by Jörg Schlaich and Kurt Schäfer (Professors at the University of Stuttgart from 1974 to 2000) through strut and tie models to verify and design the regions of discontinuity where the laws of Hook and Bernoulli are not applicable. Today this method is considered in the main design standards of concrete structures in the world (MC CEB-FIP of 2010, Eurocode 2 of 2015, ACI 318-02) as a practical and reliable method to analyse special regions and, in particular, regions of discontinuity in concrete structures. This seminar is intended to develop a deep understanding and application of strut and tie models in reinforced concrete structures, including a general presentation of the strut and tie models, basic principles, generality and practicality, as well as their application to special concrete elements and regions of discontinuity of concrete structures.

**Speaker's Biography**



Prof. Dr.-Ing Balthasar Novák is currently a Professor at the University of Stuttgart and the Deputy Director of the Institute for Lightweight Design, Design and Construction. He received his bachelor's and PhD degrees in Civil Engineering at the Technical University Darmstadt in 1990 and 1995. His research interests include the analysis and design of discontinuity areas (D-areas) of reinforced concrete components under seismic loading, double composite bridges with steel trapezoidal sheet webs, developing structure management systems for the maintenance of bridges and engineering structures, double ceilings for multi-storey buildings, and further development of European regulations in bridge construction. He was involved in many working groups for the development of Eurocodes, such as ENV 1992-2 "Design of Concrete Bridges" and ENV 1991-2.5 "Thermal Actions". He also served in the National mirror committee to ENV 1991-3 (now EN 1991-2) "live loads on bridges" since 1993 and became the chairman of the committee in 2013. He has been the Founding dean for civil engineering at the German University in Cairo, Egypt since 2010, and the Adjunct Professor at IIT Mandi since 2018.