HDM
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Predavanje u HDMu:

Practical considerations in offshore scaffolding design using an equivalent beam model

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SAŽETAK

Hollow cylinders are one of the most common elements in offshore engineering, e.g. risers and pipes. Among vast materials to produce these kinds of elements, all have one mutual defect that is corrosion. Most common materials used in offshore structures are steel and reinforced concrete but can be both subjected to high corrosion which makes maintenance expensive in terms of time and money. Plastics have higher corrosion properties with respect to steel, but they are not stiff enough to bear loads. Therefore, fiber reinforced plastics (FRP) have been introduced which can be tailored according to the designer needs.
Modelling composite hollow cylinders is not an easy task especially due to the presence of coupling phenomena among bending, torque and traction actions. Recently researchers introduced higher-order modelling of composite beams which introduce high computational costs and time-consuming interpretation of results, on the contrary a classical beam theory is very easy to follow, and results achieved are easily understandable. In addition, classical beam theory is available in every commercial code for 3D frame design, which are generally considered for scaffold calculation. The aim of the present talk is to show practical considerations in the design of scaffolding systems used in offshore environment through the use of a simple equivalent beam model based on a cross-section homogenization.