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Construction of a dynamic finite element model for vibration analysis of reticulate systems

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In the present work a model of dynamic finite element for vibration analysis of reticulate systems is proposed. It is proposed a method of construction of dynamic stiffness matrices and inertia matrices for the cases of bending, traction and torsion in free and forced vibrations. From exact analytical solutions of vibration equations it is established that the dynamic shape functions allows obtaining the coefficients of dynamic stiffness matrices and inertia matrices. These coefficients depend on frequency of free vibrations of the system. This dynamic finite element model allows obtaining an exact solution for reticulate systems in classical approach of the dynamic analysis of structures.

Speaker Biography

Abelim Passoli is a PhD student in Engineering Sciences (DOCs3s4-SPI) at the University of Abomey-Calavi, Cotonou, Benin. He is a graduate of the National Conservatory of Arts and Crafts (Cnam) of Paris in France and of Higher National School of Technology (ENSUT) in Dakar, Senegal. As a Construction and Planning Engineer, he has held several senior positions in the public and private sector with more than 26 years of experience in the field of transport and public works and the management of various phases of road infrastructure, urban infrastructure, rural equipment project studies and public contracts. As a Specialist in transport economics, since 2004 he has been involved in the technical and economic studies of infrastructure projects in Togo and in the sub-region through the SITRASS network in the expertise and valuation of companies' real estate assets.

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