A Contribution to the Analysis of Concrete Cable-Stayed Bridges

Abstract Presented in this paper is the influence of selected parameters on certain features of the structural system of cable-stayed bridges. Assuming that the stiffening girder is concrete i.e. that ratio between live and dead load is small, the second-order nonlinear effect due to the sag effect of stay cables was neglected during the analysis. For the evaluation of sectional forces a single plane static analysis was employed.

We investigated a radiating multy-stay self-anchored cable system. For two basic arrangements the main geometrical parameters were varied: ratio between the pylon height and central span length and ratio between side and central span length. The influence of connection between pylon and stiffening girder was also analysed.

The results of this qualitative analysis are shown on diagrams accompanied by pertinent conclusions.

Keywords Bridges, cable-stayed, concrete, structural design.