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Comments by the Author of the Introductory Report

Commentaire de l'auteur du rapport introductif

Kommentar des Autors zum Einführungsbericht

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First, Messrs. Mazilu and Sandi who could not attend the symposium presented a method to formulate the damping capacity based on the linear rheological models, introducing different types of mathematical models. They also summarized the quantative results of the damping capacity of structures.

The damping behavior of the existing bridge superstructure was thoroughly discussed by Messrs. Ito, Katayama and Nakazono. They derived the average values of damping factors of bridge superstructures deducing a number of test data gathered, and discussed the effects of mode, mass, flexural rigidity, amplitude, supporting condition and interface friction on damping factors, that were found from the model tests.

The damping due to mechanical friction at the structural connection was discussed by Professor Yamada who could not attend, introducing the behaviors of welded and riveted beams under vibration test as an example. He showed the theoretical assessment on friction damping of cantilever beams with splice joints as well as the test results of cantilever and simple beams with one or two splice joints, and concluded friction damping increased with vibration amplitude.

Another set of test results on structural damping was reported by Dr. Mentel who was also absent. He tested a number of single I beams with stiffners and double I beams with several floor beams under different supporting conditions. Discussed in his paper were the effects of supporting conditions, number of floor beams, stiffness of floor beams, and skew angle of floor beams. He concluded in some cases the effect of structural damping in bridge structures can be the dominant one.

Three examples of the application of the damping device on the real structure were introduced by Messrs. Bobrowski and Cramer. They were a cantilever roof with heavy judge box at its tip, a roof supported by suspension cables, and a shell type roof. The most effective place of damping device was studied and a great deal of saving in the cost provided by the application of the damper was emphasized,

comparing with the rigid high density design.

Following the presentations of the prepared discussions, Messrs. Brondum-Nielsen, Ito, Plauk, Javor and Ciolina presented their free duscussions on several problems concerning the damping and energy absorption of structures.

Unfortunately, the author had a feeling during the session of the symposium that the hysteretic damping of the structure had been scarcely discussed, to which more attention should be paid from the author's opinion.