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## Passive control of tubes by crosscorrelation of ambient noise fields

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**Abstract :** The tube or pipeline are used for the routing of the uids such asgas, oil or water. The tubes deteriorate during its life. This dete-rioration can reveal defects, from where need for controlling of suchstructure. It is interesting to be able to detect damages in tubes byusing a passive control method. The goal of this work is to show inexperiments the possibility of using the function of cross correlation, between tow signals of noise, in order to make a passive control of thetubular structures. The noise in the tube was generated by ow of uid. The reproducibility of the function of cross correlation and its sensi-tivity to the presence of a defect, were checked for several frequencies in the frequently band of [200 Hz, 35kHz]. Moreover, the movement the uid in the tube generates a temperature variation; the inu-ence of this temperature variation on the cross correlation function wasstudied.

Keywords : Green function, ambiant noise, cross corrélation, tube, flow fluide