Faculty of Engineering and Physical Sciences
School of Mechanical, Aerospace and Civil Engineering

Vibration Measurement on the London Eye

The London Eye

Vibration measurement in a capsule of the London Eye

The London Eye is listed as one of the ten top attractions in London. Indeed, it has attracted millions visitors to enjoy a bird's eye view of the centre of London and a sensation of riding.

Dr Tianjian Ji, his two PhD students, Mr, Tianxin Zhen and Mr. Xiaoye Yu, and an independent consultant, Dr Brian Ellis, carried out dynamic tests on the London Eye on a sunny morning in April 2007.

One of the objectives of the tests was to measure the vibration levels of the London Eye in three perpendicular directions. This information will be useful to the operation of the London Eye and for new wheels or towers which may be built in the future.

Different from the vibrations of a grandstand where the structure is stationary and the vibration is purely induced by spectators, the London Eye is moving and its vibrations are induced by the environmental effects, such as wind, the operation of the wheel and the movements of the 800 spectators in the 32 capsules on the wheel.

One of the capsules was used for the tests. Continuous vibration measurements were taken for almost three hours. Several typical scenarios were monitored, including when the wheel was stationary without spectators, when the wheel was running without spectators and when the wheel was running with spectators, i.e. in a full operation. Hence the vibration levels induced by people, by the operation of the wheel and by the environment could be identified.