# Experimental modal analysis of a golf clubface: Investigation of trampoline effect


## Abstract

A complete modal analysis of a golf clubface has been presented in order to investigate the 'trampoline effect'. The availability of titanium golf drivers with thin, flexible faces opens up the opportunity to design the club so that it works together with the elasticity of the ball to provide the 'trampoline effect' or 'spring' from the clubface. Enhancement of coefficient of restitution results from a close match of the fundamental flexing frequency of vibration of the clubface to a natural frequency for the compressive mode of oscillation. Experimental modal analyses were performed on a driver clubface to determine the frequencies and vibration modes. For the fundamental flexing mode, good agreement is found between the results of experimental modal analyses and the theory.