ΑΝΑΛΥΣΗ ΑΝΩΔΟΜΗΣ και
ΔΥΝΑΜΙΚΗ ΑΛΛΗΛΕΠΙΠΑΡΑΣΗ ΕΔΑΦΟΥΣ – ΚΑΤΑΣΚΕΥΗΣ
σε ΠΥΡΓΟΥΣ ΑΝΕΜΟΓΕΝΝΗΤΡΙΩΝ

Διπλωματική Εργασία

ΜΑΡΙΟΥ ΠΑΝΑΓΙΩΤΟΥ

Επιβλέποντες
Γιώργος Γκαζέτας, Καθηγητής
Χάρης Γαντές, Επίκουρος Καθηγητής
Πρόδρομος Ψαρρόπουλος, Πρόδρομος

ΑΝΑΛΥΣΗ and
DYNAMIC SOIL – STRUCTURE INTERACTION
of WIND TURBINE TOWERS

Diploma Thesis by

MARIOS PANAGIOTOU

Supervised by
George Gazetas, Professor
Charis Gantes, Assistant Professor
Prodromos Psarropoulos, Ph.D.

Ιούλιος 2003
During the last years the production of electrical energy by exploiting the wind has a rapid development, as modern wind turbines, supported by steel towers, are constructed. Groups of such wind turbines form the so-called wind (or Aeolian) parks. The present work: (a) analyses the superstructure of a wind turbine, where structural and mechanical elements are met, and (b) investigates its response through the field of soil dynamics, regarding a superstructure–foundation–soil system. Moreover, because of the ongoing construction of wind parks, where a lot of wind turbines operate together, a case study of parasitic phenomena in the vicinity of a group of turbines is investigated.