

La Gaceta

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UNIVERSIDAD NACIONAL DE INGENIERÍA Escuela Central de Posgrado

Se invita a la comunidad universitaria a participar de la videoconferencia de la defensa pública virtual de la Tesis de **DOCTORADO EN CIENCIAS CON MENCIÓN EN ENERGÉTICA**, del alumno David Barreto Lara, a realizarse el día miércoles 21 de octubre, a las 09 h 00.

TITULO DE LA TESIS:

"UNCERTAINTY QUANTIFICATION IN STRUCTURAL RESPONSES
OF OFFSHORE MONOPILE WIND TURBINES"

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ABSTRACT

One of the problems related to the high costs of wind energy is the presence of uncertainties that affect the design process. This leads to over-conservatism, high safety factors and excess of material in the designs. Therefore, the understanding of the impact that these uncertainties can have on the loads/responses that govern the design of offshore wind turbines is crucial. Offshore wind energy projects are mainly based on computer simulations that are fed by field data. However, the numerical models are not completely accurate and reliable data is not always available. The present research explores the effects of the three main types of uncertainty considered in the field of reliability analysis of structural systems: physical, statistical and model. The effects of uncertainty in the wave parameters, uncertainty in the shear coefficient, the influence of the simulation length, and effects of soil flexibility on the dynamic responses of a monopile offshore wind turbine are investigated.

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