



# **NIGERIAN ASSOCIATION OF MATHEMATICAL PHYSICS (NAMP)**

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## **Annual Colloquium & Congress-IUO 2021**

**THEME:**

**EMERGING IMPACT OF MATHEMATICAL PHYSICS  
IN COMBATING COVID-19  
PANDEMIC**

# **BOOK OF ABSTRACT**



Wednesday 3rd -  
Thursday 4th  
November, 2021



Olagunsoye Oyinlola  
Auditorium, Main  
Campus, Osogbo.

## STUDY OF VORTEX-INDUCED VIBRATIONS IN TRANSMISSION LINES

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### **Abstract**

In this research, the effects of Vortex-Induced Vibrations (VIV) on transmission lines, the equation of the transmission line as well as the lift force acting on these lines were considered. The equation of the lift force was also considered and graphs of the lift force against wind velocity; conductor length and conductor diameter were separately plotted. The graphs of the solution of the transmission line equation under different conditions were further plotted. From the results obtained, it was observed that only the wind velocity has a significant effect on the lift force acting on the conductor and the vortex-induced vibrations on the transmission lines cause them to undergo different kinds of vibrations under different conditions. VIV occurring in these lines also cause bending and fretting which could also reduce their life span. As a result of these vibrations, radiant waves are emitted which can be hazardous to our health.

**Keywords:** Vortex-Induced Vibration, Lift force, Dampers, Vorticity.