

Abstract Submitted
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Synchronization Dynamics of Coupled Anharmonic Plasma Oscillators JOHN LAOYE, Department of Physics, Olabisi Onabanjo University, PMB 2002, Ago-Iwoye, Nigeria, UCHECHUKWU VINCENT, Department of Physics, Lancaster University, Lancaster LA1 4YB, United Kingdom, TAIWO ROY-LAYINDE, Department of Physics, University of Ibadan, Ibadan Nigeria — The synchronization of two identical mutually driven coupled plasma oscillators modeled by anharmonic oscillators was investigated. Each plasma oscillator was described by a nonlinear differential equation of the form: $\ddot{x} + \epsilon(1+x^2)\dot{x} + x + \kappa x^2 + \delta x^3 = F \cdot \cos(\omega t)$. The model employed the spring-type coupling. Numerical simulations, including Poincaré sections, time series analysis, and bifurcation diagram were performed using the fourth-order Runge-Kutta scheme. The numerical value of the threshold coupling K_{th} was determined to be approximately 0.15.

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