Title: Surprises of the transformer as a coupled oscillator system

Author(s): Silva, J. P.¹; Silvestre, A. J.¹


Abstract: We study a system of two RLC oscillators coupled through a variable mutual inductance. The system is interesting because it exhibits some peculiar features of coupled oscillators: (i) there are two natural frequencies; (ii) in general, the resonant frequencies do not coincide with the natural frequencies; (iii) the resonant frequencies of both oscillators differ; (iv) for certain choices of parameters, there is only one resonant frequency, instead of the two expected.

Document Type: Article

Language: English

Reprint Address: Silva, JP (reprint author), Inst Super Engn Lisboa, Rua Conselheiro Emidio Navarro, P-1950062 Lisbon, Portugal.

Addresses:
1. Inst Super Engn Lisboa, P-1950062 Lisbon, Portugal

E-mail Address: jpsilva@deea.isel.ipl.pt; asilvestre@deq.isel.ipl.pt

Publisher: Iop Publishing LTD
Address Publisher: Dirac House, Temple Back, Bristol BS1 6BE, England

IDS Number: 294PG

ISSN: 0143-0807