

# **Inductance: Loop and Partial**

By Clayton R. Paul



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# The only resource devoted Solely to Inductance

Inductance is an unprecedented text, thoroughly discussing "loop" inductance as well as the increasingly important "partial" inductance. These concepts and their proper calculation are crucial in designing modern high-speed digital systems. World-renowned leader in electromagnetics Clayton Paul provides the knowledge and tools necessary to understand and calculate inductance.

Unlike other texts, *Inductance* provides all the details about the derivations of the inductances of various inductors, as well as:

- Fills the need for practical knowledge of partial inductance, which is essential to the prediction of power rail collapse and ground bounce problems in high-speed digital systems
- Provides a needed refresher on the topics of magnetic fields
- Addresses a missing link: the calculation of the values of the various physical constructions of inductors—both intentional inductors and unintentional inductors—from basic electromagnetic principles and laws
- Features the detailed derivation of the loop and partial inductances of numerous configurations of current-carrying conductors

With the present and increasing emphasis on high-speed digital systems and high-frequency analog systems, it is imperative that system designers develop an intimate understanding of the concepts and methods in this book. *Inductance* is a much-needed textbook designed for senior and graduate-level engineering students, as well as a hands-on guide for working engineers and professionals engaged in the design of high-speed digital and high-frequency analog systems.



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## Inductance: Loop and Partial By Clayton R. Paul Bibliography

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#### **Editorial Review**

About the Author

Clayton R. Paul received his PhD in electrical engineering from Purdue University. He is the Sam Nunn Eminent Professor of Electrical and Computer Engineering at Mercer University in Macon, Georgia. Dr. Paul is also Emeritus (retired with distinction after 27 years on the faculty) Professor of Electrical Engineering at the University of Kentucky. He is the author of 15 textbooks on electrical engineering subjects and has published over 200 technical papers, the majority of which are in his primary research area of the electromagnetic compatibility (EMC) of electronic systems. Dr. Paul is a Life Fellow member of the Institute of Electrical and Electronics Engineers (IEEE) and an Honorary Life Member of the IEEE EMC Society. He received the prestigious 2005 IEEE Electromagnetics Award and the 2007 IEEE Undergraduate Teaching Award.

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