Teaching and Research Summary

Teaching:
Electric circuit theory
Signal processing
Electric energy systems
Medical electronics
Biomedical instrumentation
Engineering materials and electronics
History of engineering inventions
Electrical measurements lab with LabVIEW

Research:
Energy conversion devices
Electrical measurements
Denoising methods
Bioelectrical engineering
Biomedical instrumentation
Bioamplifiers and denoising
Rechargeable batteries
Electrical device fabrication
Device and materials characterization

Selected publications:
1) Transient-boundary voltage method for measurement of equivalent circuit components of rechargeable batteries, *Journal of Power Sources*, **196**, 2360-2363 (2011).
2) Equivalent circuit components of nickel-cadmium battery at different states of charge, *Journal of Power Sources*, **196**, 5205-5208 (2011).
3) Equivalent circuit components of nickel-metal hydride battery at different states of charge, *Journal of Power Sources*, **196**, 7812-7815 (2011).
4) Synchronous Averaging Method Virtual Instrument, with N. Doo *Journal of Graphomathematical Algorithms***,16,** 371-377 (2011).
5) An electrical model of the heart, *International Journal of Electrical Engineering Education*, **45**, no 1, 26-33, (2008).
6) Using electrical principles to model the ear, *International Journal of Electrical Engineering Education*, **42**, 303 (2005).
7) Second derivative analysis of consonant-vowel transition waveforms, *Journal of the Acoustical Society of America*, **114**, 59 (2003).
8) An electrical model for Ca^{+} channels in excitable membranes, *Journal of Materials Science Letters*, **14**, 258 (1995).
9) An electrical model for ion channels in excitable membranes, *Journal of Materials Science Letters*, **13**, 569 (1994).
10) Electrically activated ion transport across ion-exchange membrane, *Journal of Materials Science Letters*, **12**, 320 (1993).

11) Analytical electron microscopy of Nafion ion exchange membranes, with Stefan Rieberer, *Ultramicroscopy*, **41**, 225-234 (1992).
11) Electrical properties of carbon black-polyimide thick films, *Thin Solid Films*, **168**, 169 (1989).
12) An electrical and microstructural study of composite films of carbon black in polyimide, with U. Rieck, *Composites Science and Technology*, **35**, 95 (1989).
13) A microstructural study of carbon black-polyimide thick films, with U. Rieck, *Thin Solid Films*, **162**, 279 (1988).
14) Grain-boundary etch for CdTe films in Schottky-barrier solar cells, with P. V. Meyers. *Thin Solid Films*, **137**, L47 (1986).
15) Fabrication and characterization of stable high efficiency (CdZn)S/Cu_2S solar cells, with R. B. Hall. *Thin Solid Films*, **88**, 55 (1982).
16) A device oriented materials study of CdS and Cu_2S films in solar cells, with J.W. Edington. *Thin Solid Films*, **75**, 53 (1981).

Book:
Electrical Engineering Theory and Examples, Revised 4th Edition, HRC Publishers, 2010
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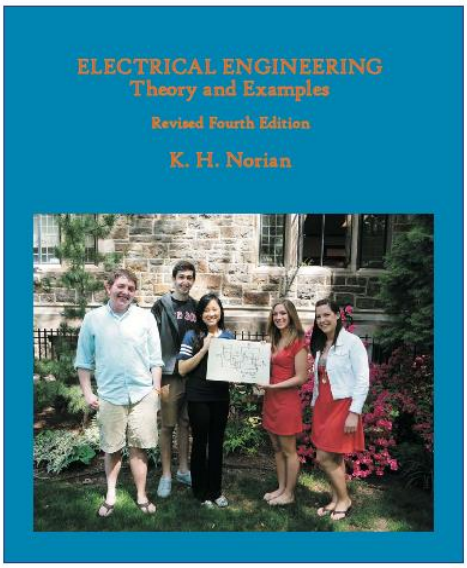

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Journal of Graphomathematical Algorithms, 17 volumes to date, LabVIEW algorithms for instrumentation and measurements.

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