

# RCA REVIEW

*a technical journal*

RADIO AND ELECTRONICS  
RESEARCH • ENGINEERING

---

## INDEX

---

VOLUME XXV

---

TABLE OF CONTENTS

---

### March

	PAGE
Electromagnetic Properties of Finite Plasmas .....	3
M. P. BACHYNSKI AND K. A. GRAF	
Microwave Tunnel-Diode Amplifiers with Large Dynamic Range....	54
R. STEINHOFF AND F. STERZER	
Techniques for Digital Communication via Satellites .....	67
F. ASSADOURIAN AND E. M. BRADBURD	
Ellipsometry—A Valuable Tool in Surface Research .....	85
K. H. ZAININGER AND A. G. REVESZ	
Introductory Statistics and Sampling Concepts Applied to Radar Evaluation .....	116
R. J. D'ORTENZIO	

### June

Preparation, Optical Properties, and Band Structure of Boron Mono- phosphide .....	159
C. C. WANG, M. CARDONA, AND A. G. FISCHER	
Free-Space Microwave Techniques for Plasma Measurements .....	168
M. P. BACHYNSKI AND G. G. CLOUTIER	
A Photoconductive Thermoplastic Recording System .....	200
N. E. WOLFF	
A New Surface Phenomenon in Thermoplastic Layers and Its Use in Recording Information .....	209
F. H. NICOLL	
The NASA Relay I Experimental Communication Satellite .....	232
J. D. KIESLING	
Analysis of Gate-Controlled Space-Charge-Limited Emission Processes in Semiconductors .....	262
R. C. WILLIAMS	

	PAGE
Stable Divalent Rare Earths in Alkaline Earth Halides by Solid-State Electrolysis .....	303
F. K. FONG	
Wide-Temperature-Range Ferrite Cores for Computer Memories ....	308
H. P. LEMAIRE, H. LESSOFF, AND E. FORTIN	
<b>September</b>	
Superconducting Niobium Stannide—An Introduction .....	333
F. D. ROSI	
Superconducting Properties of the (Nb, Ta, V) <sub>3</sub> Sn System .....	338
G. D. CODY, J. J. HANAK, J. P. MCCONVILLE, AND F. D. ROSI	
Preparation and Properties of Vapor-Deposited Niobium Stannide...	342
J. J. HANAK, K. STRATER, AND G. W. CULLEN	
High-Temperature Phase Equilibrium and Superconductivity in the System Niobium-Tin .....	366
L. J. VIELAND	
Analytical Techniques for Determining the Composition of Niobium Stannide .....	379
K. L. CHENG AND E. P. BERTIN	
Anomalous Resistivity of Niobium Stannide .....	393
D. W. WOODARD AND G. D. CODY	
Transition Temperature of Niobium Stannide .....	405
J. L. COOPER	
The Superconducting Penetration Depth of Niobium Stannide .....	414
G. D. CODY	
The Superconducting Energy Gap of Niobium Stannide .....	433
G. D. CODY, Y. GOLDSTEIN, AND R. COHEN	
Lower Critical Field of Niobium Stannide .....	453
R. L. HECHT	
Critical Currents and Lorentz-Force Model in Niobium Stannide.....	466
G. D. CODY AND G. W. CULLEN	
Effect of Neutron-Induced Defects on the Current-Carrying Behavior of Niobium Stannide .....	479
G. W. CULLEN, R. L. NOVAK, AND J. P. MCEVOY	
Microwave Studies of Niobium Stannide .....	491
B. ROSENBLUM, M. CARDONA, AND G. FISCHER	
Surge-Magnetic-Field and Pulse-Current Effects in Niobium Stannide	510
W. H. CHERRY	
Critical-State Phenomena and Flux Jumping in Niobium Stannide..	533
J. P. MCEVOY	
Magnetic Field Penetration into Niobium-Stannide Discs .....	542
K. G. PETZINGER AND J. J. HANAK	
Magnetization of Niobium-Stannide Films in Transverse Fields .....	551
J. J. HANAK	

Electromagnetic Performance of Niobium-Stannide Ribbon .....	570
H. C. SCHINDLER AND F. R. NYMAN	
The Analysis of Degradation Effects in Superconductive Niobium-Stannide Solenoids .....	582
E. R. SCHRADER AND F. KOLONDRÁ	
Superconducting Energy Gap and Net Electron Drift Velocity as Functions of Temperature and Cooper-Pair Drift Velocity.....	596
R. H. PARMENTER AND L. J. BERTON	

## December

Switching Response of Complementary-Symmetry MOS Transistor Logic Circuits .....	627
J. R. BURNS	
Nonlinear-Admittance Mixers .....	662
L. BECKER AND R. L. ERNST	
Thermoplastic Organic Photoconductive Recording Media — Electrophotographic Characteristics and Processing Techniques .....	692
E. C. GIAIMO	
Generating Network Functions with an Infinite Potential Analog Plane .....	711
F. M. BROCK AND R. BINKS	
Dielectric Behavior of Nonrigid Molecules. II. Intramolecular Interactions and Dielectric Relaxation .....	752
F. K. FONG	
Theory and Application of the B-Chart .....	769
J. BRECKMAN	
Effect of High Magnetic Field on Electron-Beam Noise .....	785
J. M. HAMMER AND C. P. WEN	

## AUTHORS, VOLUME XXV

	ISSUE	PAGE
Assadourian, F. (Coauthor)—“Techniques for Digital Communication via Satellites” .....	Mar.	67
Bachynski, M. P. (Coauthor)—“Electromagnetic Properties of Finite Plasmas” .....	Mar.	3
(Coauthor)—“Free-Space Microwave Techniques for Plasma Measurements” .....	June	168
Becker, L. (Coauthor)—“Nonlinear-Admittance Mixers” .....	Dec.	662
Bertin, E. P. (Coauthor)—“Analytical Techniques for Determining the Composition of Niobium Stannide” .....	Sept.	379
Berton, L. J. (Coauthor)—“Superconducting Energy Gap and Net Electron Drift Velocity as Functions of Temperature and Cooper-Pair Drift Velocity” .....	Sept.	596
Binks, R. (Coauthor)—“Generating Network Functions with an Infinite-Potential Analog Plane” .....	Dec.	711
Bradburd, E. M. (Coauthor)—“Techniques for Digital Communication via Satellites” .....	Mar.	67
Breckman, J.—“Theory and Application of the B-Chart” .....	Dec.	769
Brock, F. M. (Coauthor)—“Generating Network Functions with an Infinite-Potential Analog Plane” .....	Dec.	711
Burns, J. R.—“Switching Response of Complementary-Symmetry MOS Transistor Logic Circuits” .....	Dec.	627

	ISSUE	PAGE
Cardona, M. (Coauthor)—“Preparation, Optical Properties, and Band Structure of Boron Monophosphide” . . . . .	June	159
(Coauthor)—“Microwave Studies of Niobium Stannide” . . . . .		
Cheng, K. L. (Coauthor)—“Analytical Techniques for determining the Composition of Niobium Stannide” . . . . .	Sept.	491
Cherry, W. H.—“Surge-Magnetic-Field and Pulse-Current Effects in Niobium Stannide” . . . . .	Sept.	379
Cloutier, G. C. (Coauthor)—“Free-Space Microwave Techniques for Plasma Measurements” . . . . .	Sept.	510
Cody, G. D.—“The Superconducting Penetration Depth of Niobium Stannide” . . . . .	June	168
(Coauthor)—“Anomalous Resistivity of Niobium Stannide” . . . . .	Sept.	414
(Coauthor)—“Critical Currents and Lorentz-Force Model in Niobium Stannide” . . . . .	Sept.	393
(Coauthor)—“The Superconducting Energy Gap of Niobium Stannide” . . . . .	Sept.	466
(Coauthor)—“Superconducting Properties of the (Nb, Ta,V) <sub>3</sub> Sn System” . . . . .	Sept.	433
Cohen, R. (Coauthor)—“The Superconducting Energy Gap of Niobium Stannide” . . . . .	Sept.	338
Cooper, J. L.—“Transition Temperature of Niobium Stannide” . . . . .	Sept.	433
Cullen, G. W. (Coauthor)—“Critical Currents and Lorentz-Force Model in Niobium Stannide” . . . . .	Sept.	405
(Coauthor)—“Effect of Neutron-Induced Defects on the Current-Carrying Behavior of Niobium Stannide” . . . . .	Sept.	466
(Coauthor)—“Preparation and Properties of Vapor-Deposited Niobium Stannide” . . . . .	Sept.	479
D'Ortenzio, R. J.—“Introductory Statistics and Sampling Concepts Applied to Radar Evaluation” . . . . .	Sept.	342
Ernst, R. L. (Coauthor)—“Nonlinear-Admittance Mixers” . . . . .	Mar.	116
Fischer, A. G. (Coauthor)—“Preparation, Optical Properties, and Band Structure of Boron Monophosphide” . . . . .	Dec.	662
Fischer, G. (Coauthor)—“Microwave Studies of Niobium Stannide” . . . . .	June	159
Fong, F. K.—“Stable Divalent Rare Earths in Alkaline Earth Halides by Solid-State Electrolysis” . . . . .	Sept.	491
—“Dielectric Behavior of Nonrigid Molecules. II. Intramolecular Interactions and Dielectric Relaxation” . . . . .	June	303
Fortin, E. (Coauthor)—“Wide-Temperature-Range Ferrite Cores for Computer Memories” . . . . .	Dec.	752
Gaiamo, E. C.—“Thermoplastic Organic Photoconductive Recording Media—Electrophotographic Characteristics and Processing Techniques” . . . . .	June	308
Goldstein, Y. (Coauthor)—“The Superconducting Energy Gap of Niobium Stannide” . . . . .	Dec.	692
Graf, K. A. (Coauthor)—“Electromagnetic Properties of Finite Plasmas” . . . . .	Sept.	433
Hammer, J. M. (Coauthor)—“Effect of High Magnetic Field on Electron-Beam Noise” . . . . .	Mar.	3
Hanak, J. J.—“Magnetization of Niobium-Stannide Films in Transverse Fields” . . . . .	Dec.	785
(Coauthor)—“Magnetic Field Penetration into Niobium-Stannide Discs” . . . . .	Sept.	551
(Coauthor)—“Preparation and Properties of Vapor-Deposited Niobium Stannide” . . . . .	Sept.	542
(Coauthor)—“Superconducting Properties of the (Nb, Ta,V) <sub>3</sub> Sn System” . . . . .	Sept.	342
Hecht, R. L.—“Lower Critical Field of Niobium Stannide” . . . . .	Sept.	338
	Sept.	453

	ISSUE	PAGE
Kiesling, J. D.—“The NASA Relay I Experimental Communication Satellite”	June	232
Kolondra, F. (Coauthor)—“The Analysis of Degradation Effects in Superconductive Niobium-Stannide Solenoids”	Sept.	582
Lemaire, H. P. (Coauthor)—“Wide-Temperature-Range Ferrite Cores for Computer Memories”	June	308
Lessoff, H. (Coauthor)—“Wide-Temperature-Range Ferrite Cores for Computer Memories”	June	308
McConville, J. P. (Coauthor)—“Superconducting Properties of the (Nb,Ta,V) <sub>3</sub> Sn System”	Sept.	338
McEvoy, J. P.—“Critical-State Phenomena and Flux Jumping in Niobium Stannide”	Sept.	533
(Coauthor)—“Effect of Neutron-Induced Defects on the Current-Carrying Behavior of Niobium Stannide”	Sept.	479
Nicoll, F. H.—“A New Surface Phenomenon in Thermoplastic Layers and Its Use in Recording Information”	June	209
Novak, R. L. (Coauthor)—“Effect of Neutron-Induced Defects on the Current-Carrying Behavior of Niobium Stannide”	Sept.	479
Nyman, F. R. (Coauthor)—“Electromagnetic Performance of Niobium-Stannide Ribbon”	Sept.	570
Parmenter, R. H. (Coauthor)—“Superconducting Energy Gap and Net Electron Drift Velocity as Functions of Temperature and Cooper-Pair Drift Velocity”	Sept.	596
Petzinger, K. G. (Coauthor)—“Magnetic Field Penetration into Niobium Stannide Discs”	Sept.	542
Revesz, A. G. (Coauthor)—“Ellipsometry—A Valuable Tool in Surface Research”	Mar.	85
Rosenblum, B. (Coauthor)—“Microwave Studies of Niobium Stannide”	Sept.	491
Rosi, F. D.—“Superconducting Niobium Stannide—An Introduction”	Sept.	333
(Coauthor)—“Superconducting Properties of the (Nb, Ta,V) <sub>3</sub> Sn System”	Sept.	338
Schindler, H. C. (Coauthor)—“Electromagnetic Performance Of Niobium-Stannide Ribbon”	Sept.	570
Schrader, E. R. (Coauthor)—“The Analysis of Degradation Effects in Superconductive Niobium-Stannide Solenoids”	Sept.	582
Steinhoff, R. (Coauthor)—“Microwave Tunnel-Diode Amplifiers with Large Dynamic Range”	Mar.	54
Sterzer, F. (Coauthor)—“Microwave Tunnel-Diode Amplifiers with Large Dynamic Range”	Mar.	54
Strater, K. (Coauthor)—“Preparation and Properties of Vapor-Deposited Niobium Stannide”	Sept.	342
Vieland, L. J.—“High-Temperature Phase Equilibrium and Superconductivity in the System Niobium-Tin”	Sept.	366
Wang, C. C. (Coauthor)—“Preparation, Optical Properties, and Band Structure of Boron Monophosphide”	June	159
Wen, C. P. (Coauthor)—“Effect of High Magnetic Field on Electron-Beam Noise”	Dec.	785
Williams, R. C.—“Analysis of Gate-Controlled Space-Charge-Limited Emission Processes in Semiconductors”	June	262
Wolff, N. E.—“A Photoconductive Thermoplastic Recording System”	June	200
Woodard, D. W. (Coauthor)—“Anomalous Resistivity of Niobium Stannide”	Sept.	393
Zaininger, K. H. (Coauthor)—“Ellipsometry—A Valuable Tool in Surface Research”	Mar.	85

