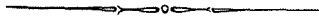


MEMOIRS
OF THE
COLLEGE OF SCIENCE

KYOTO IMPERIAL UNIVERSITY

SERIES A



VOL. XIV,

1931



KYOTO

CONTENTS OF VOLUME XIV

	PAGE
W. Nakayama u. K. Komatu —Über die Ausstrahlung der vertikalen Antennen in der drahtlosen Telegraphie mit kurzen Wellen . . .	I
Kiugoro Kitagawa —Sur l'Expansion de la Cavité Sphérique dans les Masses Fluides	23
Arata Iwamura —Quantitative Spectrum Analysis, Part I. On the Electrodes used in Quantitative Emission-Spectrum Analysis. Part II. Quantitative Emission-Spectrum Analysis of Lead in Zinc Oxide	43
Suekichi Kawata —Relation between the K Absorption Edge and the $K\beta_2$ Line of Ni , Cu and Zn	55
Shinsuke Tanaka and Chujiro Matano —Studies on the Diffusion of Metals in the Solid State, Part II	59
Shinsuke Tanaka, Genjiro Okuno and Akira Tsuji —X-Ray Diffraction of Some Organic Substances in the Solid and liquid States	67
Gisho Sakurada —A New Method of Determining Tin and Antimony in their Mixture	73
Kenzo Tanaka and Keiichi Kamio —Mechanical Twins in White Tin and Zinc	79
Hiroshi Okamura —Sur l'approximation successive et l'unicité de la solution de $\frac{dy}{dx} = f(x, y)$	85
Yoshio Fukami —The Arrangement of the Micro-Crystals in Compressed Single-Crystal-Plates of Aluminium, Part III	97
Usaburo Yoshida and Noritomo Matsumoto —X-Ray Diffraction Pattern of Native Cellulose	115
Chujiro Matano —Influence of Temperature upon the Diffusion Coefficient of Solid Metals	123
Tatsumi Terada —The "Splash Negative Figure" and the Side-Branched of the Positive Figure impressed on Photographic Plates	131
Shigeru Komatsu, Haruki Fujimoto and Shozo Tanaka —Study on Sesquiterpenes, I. Sesquiterpene and Sesquiterpene Alcohol from Japanese Camphor Oil	149

Sakujiro Kimura —Stereochemical Studies on Hydronaphthalene and Its Derivatives	173
Shūjiro Kunii —On a Unified Theory of Gravitational and Electromagnetic Fields	195
Ichiro Aoki —Experimental Studies on the Sound of a Japanese Hanging Fire-Bell	213
Tatsumi Terada —Some Strange Oscillatory Discharge-Figures on Photographic Plates	219
Suekichi Kawata —X-Ray Diagram Lines Strongly Absorbed in the Absorption Spectra	227
Masao Sawada —On the Multiple Structure in the <i>K</i> X-ray Absorption Spectra of the Metallic Elements Cr, Mn, Fe, Co, Ni and Cu	229
Akira Kobori —Ueber die Schlichtheit der Abschnitte gewisser Potenzreihen	251
Yoshiaki Matsunaga —The Crystal of Zinc coating the Surface of Iron Plate	263
Shigeru Komatsu and Gonichi Nomura —On the Hydrolysis of Polysaccharides, I. The Influence of Neutral Salts on the Acid Inversion of Sucrose	267
Sakujiro Kimura and Susumu Mizoshita —Studies on Sesquiterpenes, II. Sesquiterpene and Sesquiterpene Alcohol from Japanese Cedar Oil (<i>Cryptomeria Japonica</i> or Sugi Oil)	273
Wei Sun Tao and Shigeru Komatsu —Biochemical Studies on the Soya Bean, I. The Chemical Changes of the Protein during the Germination of the Soya Bean in Darkness	287
Wei Sun Tao —Biochemical Studies on the Soya Bean, II. Action of the Enzymes in Soya Bean Seedlings on Glycinin	293
Shigeru Komatsu and Keisaku Mitsui —Catalytic Action at High Temperature and under High Pressure, V. Catalytic Hydrogenation of Benzoic Acid	297
Sakujiro Kimura —Stereochemical Studies on Hydronaphthalenes, II. Absorption Spectra of Hydronaphthalenes	303
Toshizô Matsumoto —On the Definition of Functions by the Recurrence Formula so as to satisfy the Linear Homogeneous Differential Equations of the Second Order	317
Arata Iwamura —Quantitative Spectrum Analysis, Part III. Quantitative Emission-Spectrum Analysis of Cadmium in Zinc Oxide. Part IV. Quantitative Emission-Spectrum Analysis of Copper contained in Lead	327

INDEX OF AUTHORS TO VOLUME XIV

	PAGE
Aoki, I.—Experimental Studies on the Sound of a Japanese Hanging Fire-Bell	213
Fujimoto, H.—(See Komatsu, S., Fujimoto, H. and Tanaka, S.)	149
Fukami, Y.—The Arrangement of the Micro-Crystals in Compressed Single-Crystal- Plates of Aluminium, Part III	97
Iwamura, A.—Quantitative Spectrum Analysis, Part I. On the Electrodes used in Quantitative Emission-Spectrum Analysis. Part II. Quantitative Emission-Spectrum Analysis of Lead contained in Zinc Oxide	43
Iwamura, A.—Quantitative Spectrum Analysis, Part III. Quantitative Emission-Spectrum Analysis of Cadmium in Zinc Oxide. Part IV. Quantitative Emission-Spectrum Analysis of Copper contained in Lead	327
Kamio, K. (See Tanaka, K. and Kamio, K.)	79
Kawata, S.—Relation between the K Absorption Edge and the $K\beta_2$ Line of Ni, Cu and Zn	55
Kawata, S.—X-Ray Diagram Lines Strongly Absorbed in the Absorption Spectra . .	227
Kimura, S.—Stereochemical Studies on Hydronaphthalene and Its Derivatives	173
Kimura, S.—Stereochemical Studies on Hydronaphthalenes, II. Absorption Spectra of Hydronaphthalenes	303
Kimura, S. and Mizoshita, S.—Studies on Sesquiterpenes, II. Sesquiterpene and Sesquiterpene Alcohol from Japanese Cedar Oil (<i>Cryptomeria Japonica</i> or Sugi Oil)	273
Kitagawa, K.—Sur l'expansion de la Cavité Sphérique dans les Masses Fluides	23
Koboi, A.—Ueber die Schlichtheit der Abschnitte gewisser Potenzreihen	251
Komatsu, S., Fujimoto, H. and Tanaka, S.—Study on Sesquiterpenes, I. Sesquiter- pene and Sesquiterpene Alcohol from Japanese Camphor Oil	149
Komatsu, S. and Mitsui, K.—Catalytic Action at High Temperature and under High Pressure, V. Catalytic Hydrogenation of Benzoic Acid	297
Komatsu, S. and Nomura, G.—On the Hydrolysis of Polysaccharides, I. The Influence of Neutral Salts on the Acid Inversion of Sucrose	267
Komatu, K. (Sich Nakayama, W. u. Komatu, K.)	I
Komatsu, S. (See Tao, W. S. and Komatsu, S.)	287
Kunii, S.—On a Unified Theory of Gravitational and Electromagnetic Fields	195
Matano, C.—Influence of Temperature upon the Diffusion Coefficient of Solid Metals .	123
Matano, C. (See Tanaka, S. and Matano, C.)	59
Matsumoto, T.—On the Definition of Functions by the Recurrence Formula so as to satisfy the Linear Differential Equations of the Second Order	317
Matsumoto, N. (See Yoshida, U. and Matsumoto, N.)	115
Matsunaga, Y.—The Crystal of Zinc coating the Surface of Iron Plate	263
Mitsui, K. (See Komatsu, S. and Mitsui, K.)	297
Mizoshita, S. (See Kimura, S. and Mizoshita, S.)	273
Nakayama, W. u. Komatu, K.—Über die Ausstrahlung der vertikalen Antennen in der drahtlosen Telegraphie mit kurzen Wellen	I

	PAGE
Nomura, G. (See Komatsu, S. and Nomura, G.)	267
Okamura, H.—Sur l'approximation successive et l'unicité de la solution de $\frac{dy}{dx}=f(x,y)$	85
Okuno, G. (See Tanaka, S., Okuno, G. and Tsuji, A.)	67
Sakurada, G.—A New Method of Determining Tin and Antimony in their Mixture	73
Sawada, M.—On the Multiple Structure in the $K\alpha$ X-Ray Absorption Spectra of the Metallic Elements Cr, Mn, Fe, Ni and Cu	229
Tanaka, K. and Kamio, K.—Mechanical Twins in White Tin and Zinc	79
Tanaka, S. and Matano, C.—Studies on the Diffusion of Metals in the Solid State, Part II	59
Tanaka, S., Okuno, G. and Tsuji, A.—X-Ray Diffraction of Some Organic Substances in the Solid and Liquid States	67
Tanaka, S. (See Komatsu, S., Fujimoto, H. and Tanaka, S.)	149
Tao, W. S.—Biochemical Studies on the Soya Bean, II. Action of the Enzymes in Soya Bean Seedlings on Glycinin	293
Tao, W. S. and Komatsu, S.—Biochemical Studies on the Soya Bean, I. The Chemical Changes of the Protein during the Germination of the Soya Bean in Darkness	287
Terada, T.—The "Splash Negative Figure" and the Side-Branches of the Positive Figure impressed on Photographic Plates	131
Tarada, T.—Some Strange Oscillatory Discharge-Figures on Photographic Plates	219
Tsuji, A. (See Tanaka, S., Okuno, G. and Tsuji, A.)	67
Yoshida, U. and Matsumoto, N.—X-Ray Diffraction Pattern of Native Cellulose	115

INDEX OF SUBJECTS TO VOLUME XIV

	PAGE
Absorption Spectra of Hydronaphthalenes, Stereochemical Studies on Hydronaphthalenes, II (<i>Kinura</i>)	303
Acid Inversion of Sucrose, On the Hydrolysis Of Polysaccharides, I. The Influence of Neutral Salts on the, (<i>Komatsu and Nomura</i>)	267
Alcohol from Japanese Cedar Oil (<i>Cryptomeria Japonica</i> or Sugi Oil), Studies on Sesquiterpenes, II. Sesquiterpene and Sesquiterpene, (<i>Kinura and Mizoshita</i>)	273
Aluminium, The Arrangement of the Micro-Crystals in Compressed Single-Crystal-Plates of, Part III (<i>Fukami</i>)	97
Antimony in their Mixture, A New Method of Determining Tin and, (<i>Sakurada</i>)	73
Approximation successive et l'unicité de la solution de $\frac{dy}{dx}=f(x, y)$, Sur l', (<i>Okamura</i>)	85
Ausstrahlung der vertikalen Antennen in der drahtlosen Telegraphie mit kurzen Wellen, Über die, (<i>Nakayama u. Komatsu</i>)	1
Benzoic Acid, Catalytic Action at High Temperature and under High Pressure, V. Catalytic Hydrogenation of, (<i>Komatsu and Mitsui</i>)	297
Cadmium in Zinc Oxide, Quantitative Spectrum Analysis, Part III. Quantitative Emission-Spectrum Analysis of, (<i>Iwamura</i>)	327
Catalytic Action at High Temperature and under High Pressure, V. Catalytic Hydrogenation of Benzoic Acid (<i>Komatsu and Mitsui</i>)	297
Catalytic Hydrogenation of Benzoic Acid, Catalytic Action at High Temperature and under High Pressure, V. (<i>Komatsu and Mitsui</i>)	297
Cellulose, X-Ray Diffraction Pattern of Native, (<i>Yoshida and Matsumoto</i>)	115
Compressed Single-Crystal-Plates of Aluminium, Part III, The Arrangement of the Micro-Crystals in, (<i>Fukami</i>)	97
Copper contained in Lead, Quantitative Spectrum Analysis, Part IV. Quantitative Emission-Spectrum Analysis of, (<i>Iwamura</i>)	332
Crystal of Zinc coating the Surface of Iron Plate, The, (<i>Matsunaga</i>)	263
Differential Equations of the Second Order, On the Definition of Functions by the Recurrence Formula so as to satisfy the Linear, (<i>Matsumoto</i>)	317
Diffusion Coefficient of Solid Metals, Influence of Temperature upon the, (<i>Matano</i>)	123
Diffusion of Metals in the Solid State, Studies on the, Part II. (<i>Tanaka and Matano</i>)	59
Discharge-Figures on Photographic Plates, Some Strange Oscillatory, (<i>Terada</i>)	219
Enzymes in Soya Bean Seedlings on Glycinin, Biochemical Studies on the Soya Bean, II. Action of the, (<i>Tao</i>)	294
Expansion de la Cavité Sphérique dans les Masses Fluides, Sur l', (<i>Kitagawa</i>)	23
Germination of the Soya Bean in Darkness, Biochemical Studies on the Soya Bean, I. The Chemical Changes of the Protein during the, (<i>Tao and Komatsu</i>)	287
Glycinin, Biochemical Studies on the Soya Bean, II. Action of the Enzymes in Soya Bean Seedlings on, (<i>Tao</i>)	294
Gravitational and Electromagnetic Fields, On a unified Theory of, (<i>Kunii</i>)	195
High Temperature and under High Pressure, Catalytic Action at, V. Catalytic Hydrogenation of Benzoic Acid (<i>Komatsu and Mitsui</i>)	297

	PAGE
Hydonaphthalene and Its Derivatives, Stereochemical Studies on, (<i>Kimura</i>)	173
Hydonaphthalenes, Stereochemical Studies on, II. Absorption Spectra of Hydro- naphthalenes, (<i>Kimura</i>)	303
Japanese Camphor Oil, Study on Sesquiterpenes, I. Sesquiterpene and Sesquiterpene Alcohol from, (<i>Komatsu, Fujimoto and Tanaka</i>)	149
Japanese Cedar Oil (<i>Cryptomeria Japonica</i> or Sugi Oil), Studies on Sesquiterpenes, II. Sesquiterpene and Sesquiterpene Alcohol from, (<i>Kimura and Mizoshita</i>)	273
Japanese Hanging Fire-Bell, Experimental Studies on the Sound of a, (<i>Aoki</i>)	213
K Absorption Edge and the $K_{\beta 2}$ Line of Ni, Cu and Zn, Relation between the, (<i>Kawata</i>)	55
Kurzen Wellen, Über die Ausstrahlung der vertikalen Antennen in der drahtlosen Telegraphie mit, (<i>Nakayama u. Komatsu</i>)	I
Lead in Zinc Oxide, Quantitative Spectrum Analysis, Part II. Quantitative Emission- Spectrum Analysis of, (<i>Iwamura</i>)	49
Metals in the Solid State, Studies on the Diffusion of, Part II (<i>Tanaka and Matano</i>)	59
Micro-Crystals in Compressed Single-Crystal-Plates of Aluminium, Arrangement of the, Part III (<i>Fukami</i>)	97
Negative Figure" and the Side-Branches of the Positive Figure impressed on Photo- graphic Plates, The "Splash, (<i>Terada</i>)	131
Neutral Salts on the Acid Inversion of Sucrose, On the Hydrolysis of Polysaccharides, I. The Influence of, (<i>Komatsu and Nomura</i>)	267
Positive Figure impressed on Photographic Plates, The "Splash Negative Figure" and the Side-Branches of the, (<i>Terada</i>)	131
Potenzreihen, Ueber die Schlichtheit der Abschnitte gewisser, (<i>Kobori</i>)	251
Protein during the Germination of the Soya Bean in Darkness, Biochemical Studies on the Soya Bean, I. The Chemical Changes of the, (<i>Tao and Komatsu</i>)	287
Quantitative Spectrum Analysis, Part I. On the Electrodes used in Quantitative Emission- Spectrum Analysis, Part II. Quantitative Emission-Spectrum Analysis of Lead in Zinc Oxide (<i>Iwamura</i>)	43
Quantitative Spectrum Analysis, Part III. Quantitative Emission-Spectrum Analysis of Cadmium in Zinc Oxide. Part IV. Quantitative Emission-Spectrum Analysis of Copper contained in Lead (<i>Iwamura</i>)	327
Recurrence Formula so as to satisfy the Linear Differential Equations of the Second Order, On the Definition of Functions by the, (<i>Matsumoto</i>)	317
Schlichtheit der Abschnitte gewisser Potenzreihen, Ueber die, (<i>Kobori</i>)	251
Sesquiterpene and Sesquiterpene Alcohol from Japanese Camphor Oil, Study on Ses- quiterpenes, I. (<i>Komatsu, Fujimoto and Tanaka</i>)	149
Sesquiterpene and Sesquiterpene Alcohol from Japanese Cedar Oil (<i>Cryptomeria Japonica</i> or Sugi Oil), Studies on Sesquiterpenes, II. (<i>Kimura and Mizoshita</i>)	273
Sesquiterpene Alcohol from Japanese Camphor Oil, Study on Sesquiterpenes, I. Ses- quiterpene and, (<i>Komatsu, Fujimoto and Tanaka</i>)	149
Sesquiterpene Alcohol from Japanese Cedar Oil (<i>Cryptomeria Japonica</i> or Sugi Oil), Studies on Sesquiterpenes, II. Sesquiterpene and, (<i>Kimura and Mizoshita</i>)	273
Single-Crystal-Plates of Aluminium, Part III. The Arrangement of the Micro-Crystals in Compressed, (<i>Fukami</i>)	97
Solid Metals, Influence of Temperature upon the Diffusion Coefficient of, (<i>Matano</i>)	123
Solid State, Studies on the Diffusion of Metals in the, Part II (<i>Tanaka and Matano</i>)	59
Sound of a Japanese Hanging Fire-Bell, Experimental Studies on the, (<i>Aoki</i>)	213
Soya Bean, Biochemical Studies on the, I. The Chemical Changes of the Protein during	

	PAGE
the Germination of the Soya Bean in Darkness (<i>Tao</i> and <i>Komatsu</i>)	287
Soya Bean, Biochemical Studies on the, II. Action of the Enzymes in Soya Bean Seedlings on Glycinin (<i>Tao</i>)	293
Soya Bean Seedlings on Glycinin, Biochemical Studies on the Soya Bean, II. Action of the Enzymes in, (<i>Tao</i>)	293
Spectra of Hydronaphthalenes, Stereochemical Studies on Hydronaphthalenes, II. Absorption, (<i>Kimura</i>)	303
Spectrum Analysis, Quantitative, Part I. On the Electrodes used in Quantitative Emission-Spectrum Analysis. Part II. Quantitative Emission-Spectrum Analysis of Lead in Zinc Oxide (<i>Iwamura</i>)	43
Spectrum Analysis, Quantitative, Part III. Quantitative Emission-Spectrum Analysis of Cadmium in Zinc Oxide. Part IV. Quantitative Emission-Spectrum Analysis of Copper contained in Lead (<i>Iwamura</i>)	327
Sucrose, on the Hydrolysis of Polysaccharides, I. The Influence of Neutral Salts on the Acid Inversion of, (<i>Komatsu</i> and <i>Nomura</i>)	267
Tin and Antimony in their Mixture, A New Method Determining, (<i>Sakurada</i>)	73
Tin and Zinc, Mechanical Twins in White, (<i>Tanaka</i> and <i>Kamio</i>)	79
Twins in White Tin and Zinc, Mechanical, (<i>Tanaka</i> and <i>Kamio</i>)	79
Unité de la solution de $\frac{dy}{dx} = f(x, y)$, l'approximation successive et l', (<i>Okamura</i>)	85
Unified Theory of Gravitational and Electromagnetic Fields, On a, (<i>Kuni</i>)	195
X-Ray Absorption Spectra of the Metallic Elements Cr, Mn, Fe, Co, Ni and Cu, On the Multiple Structure in the $K\alpha$, (<i>Sawada</i>)	229
X-Ray Diagram Lines Strongly Absorbed in the Absorption Spectra (<i>Kawata</i>)	227
X-Ray Diffraction of Some Organic Substances in the Solid and Liquid States (<i>Tanaka</i> , <i>Okuno</i> and <i>Tsuji</i>)	67
X-Ray Diffraction Pattern of Native Cellulose (<i>Yoshida</i> and <i>Matsumoto</i>)	115
Zinc, Mechanical Twins in White Tin and, (<i>Tanaka</i> and <i>Kamio</i>)	79
Zinc coating the Surface of Iron Plate, The Crystal of, (<i>Matsunaga</i>)	263