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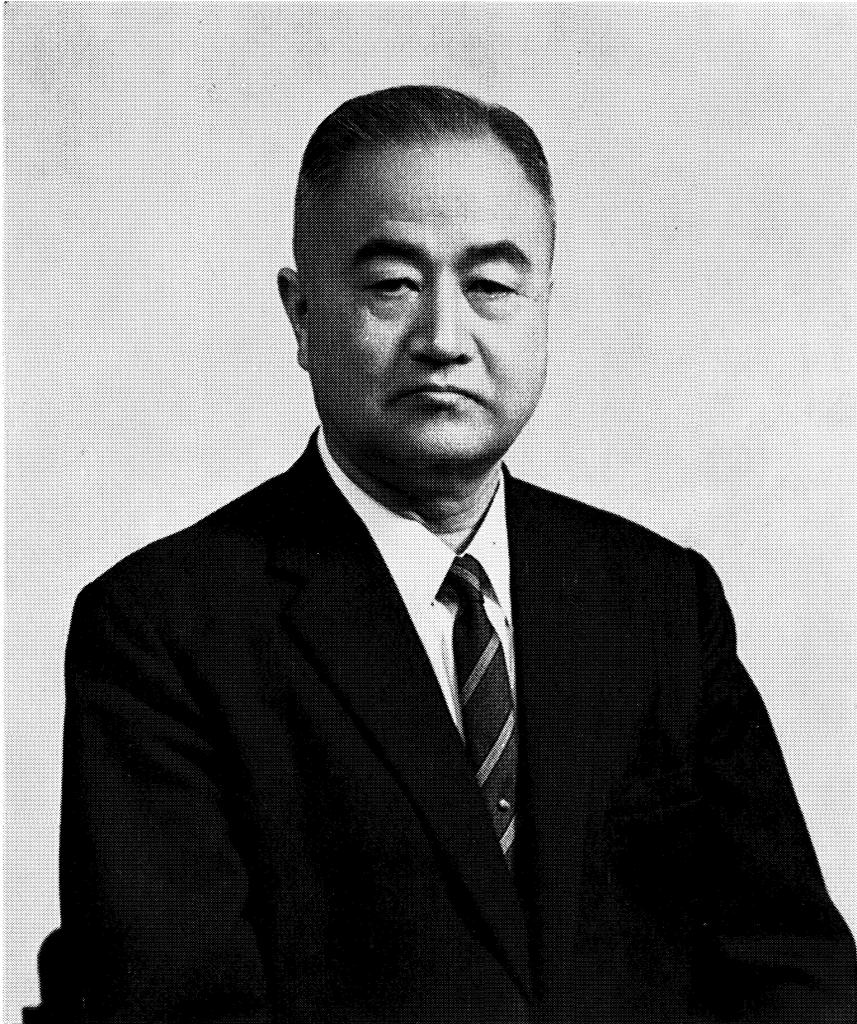
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小野 勝次

Katsuji Ono



Professor Katuzi Ono was born on April 10, 1909 in Tokyo, where he stayed until 1942. He was very feeble and shy in his boyhood, but his personality seems much influenced by the School Master Kenjiro Yamakawa of Musashi High School, Ex-President of Tokyo Imperial University, and by his character and ability as a sportsman in the latter half of his high school days 1922–1930. He was an undergraduate student at Tokyo Imperial University during 1930–1933, studying mathematics and philosophy as a student of the Mathematics Department. He was a member of the track and field team of the university. After his graduation, he studied mathematics under the guidance of Professors T. Takagi and Z. Suetuna and philosophy under the guidance of Professor G. Kuwaki at Tokyo Imperial University, teaching mathematics at Musashi High School as a lecturer. He obtained the degree Doctor of Science from the same university in 1939. Before being appointed to an associate professorship at Nagoya Imperial University in 1942, he had been a professor at Musashi High School (under the old system). In those days, he was studying mathematical logic and the foundations of mathematics, population problems, and computer sciences. He was also the general manager of the track and field team of Tokyo Imperial University for several years.

One year after changing his position from Tokyo to Nagoya, he was promoted to a full professor of mathematics at Nagoya Imperial University in 1943, which turned out to be simply called Nagoya University after the World War II, and he has kept the chair of the applied mathematics until 1969. He was much interested in mechanism of automaton in those days, noticing the close connection between the classical propositional logic, Boolean algebra, binary digital systems, and electric circuits. Cooperated with Professor H. Yamashita and Mr. R. Sato of the Faculty of Technology, Tokyo Imperial University, he tried to build up a simple computer for statistical sciences. Jointly with Yamashita and Sato, he was awarded the Academy Prize from the Japan Academy of Sciences in 1954 for the work.

As a Research Scholar of the Fullbright Exchange Program, he spent one year 1957–1958 at Massachusetts Institute of Technology, U.S.A.. During his stay in the United States, his main interest came back to the field of logics and foundations of mathematics. For several years, he sought after a basic set theoretical system standing on the classical logic, but afterwards he changed his mind to seek after a very simple logic, dreaming that every formal system

would be established purely logically in it. Indeed, he has introduced the primitive logic, and he has been successful in constructing a vast class of formal systems purely logically in his set up.

He has officiated the Mathematical Society of Japan, the Japan Association for Philosophy of Science, and also the Operations Research Society of Japan. He has taken care of sports circles, in particular track and field.

In February 1969, he was unexpectedly elected to the President of Shizuoka University, and he was appointed to the position in April 1969. He is still working on the mathematical logic in the Mathematical Institute of Nagoya University as a professor emeritus.

Editors of the  
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Mathematical papers of K. Ono

- [ 1 ] Logische Untersuchungen über die Grundlagen der Mathematik, J. Fac. Sci. Imp. Univ. Tokyo, Sect. I, **3**, Part 7 (1938), 329–389.
- [ 2 ] Eine Ausgleichungsmethode der statistischen Reihen, Japan. J. Math. **17** (1940), 117–126.
- [ 3 ] Über eine Art der Ausgleichung der statistischen Reihen, Japan. J. Math. **17** (1940), 513–515.
- [ 4 ] A set theory founded on unique generating principle, Nagoya Math. J. **12** (1957), 151–159.
- [ 5 ] On some properties of binary relations, Nagoya Math. J. **12** (1957), 161–170.
- [ 6 ] A theory of mathematical objects as a prototype of set theory, Nagoya Math. J. **20** (1962), 105–168.
- [ 7 ] On a practical way of describing formal deductions, Nagoya Math. J. **21** (1962), 115–121.
- [ 8 ] A stronger system of object theory as a prototype of set theory, Nagoya Math. J. **22** (1963), 119–167.
- [ 9 ] New formulation of the axiom of choice by making use of the comprehension operator, Nagoya Math. J. **23** (1963), 57–71.
- [10] A certain kind of formal theoreis, Nagoya Math. J. **25** (1965), 59–86.
- [11] On a theory of objects based on a single axiom scheme, Nagoya Math. J. **26** (1966), 13–30.
- [12] A formalism for primitive logic and mechanical proof-checking, Nagoya Math. J. **26** (1966), 195–203.
- [13] On universal character of the primitive logic, Nagoya Math. J. **27**–1 (1966), 331–353.
- [14] A pursuit of simple basic system, Ann. Japan Assoc. Phil. Sci. **3** (1966), 6–11.
- [15] Reinforced logics, Nagoya Math. J. **28** (1966), 15–25.
- [16] Mutual contradiction of two self-consistent abstractions, Nagoya Math. J. **28** (1966), 59–61.
- [17] A formalism for the classical sentence-logic, Nagoya Math. J. **28** (1966), 69–71.
- [18] Formal system having just one primitive notion, Nagoya Math. J. **28** (1966), 73–77.

- [19] On development of formal systems starting from primitive logic, Nagoya Math. J. **28** (1966), 79–83.
- [20] Taboo versus axiom, Nagoya Math. J. **28** (1966), 113–117.
- [21] (with J. Ito) On a characteristic feature of the positive logics, Nagoya Math. J. **28** (1966), 193–196.
- [22] A lemma which distinguishes minimal logics from other logics, Nagoya Math. J. **28** (1966), 197–201.
- [23] On Russell-type paradoxes and some related problems, Lecture notes prepared in connection with the Summer Institute on Axiomatic Set Theory, Univ. of Calif., Los Angeles: mimeographed (1967), IV-G, 7.
- [24] (with S. Miura) On pairs of very-close formal systems, Proc. Japan Acad. **43** (1967), 175–177.
- [25] Reduction of logics to the primitive logic, J. Math. Soc. Japan **18** (1967), 384–398.
- [26] A study on formal deductions in the primitive logic, Nagoya Math. J. **31** (1968), 1–14.
- [27] A remark on Peirce's rule in many-valued logics, Nagoya Math. J. **31** (1968), 69–70.
- [28] On a class of truth-value evaluations of the primitive logic, Nagoya Math. J. **31** (1968), 71–80.
- [29] On formal theories, Nagoya Math. J. **32** (1968), 361–371.
- [30] (with M. Ohta) A system of mutually contradictory  $n$  abstractions whose proper sub-systems are all mutually consistent, Nagoya Math. J. **32** (1968), 395–397.
- [31] Does mathematics need something other than logic? Ann. Japan Assoc. Phil. Sci. **3** (1968), 93–104.
- [32] On tabooistic treatment of proposition logics, Proc. Japan Acad. **44** (1968), 291–293.
- [33] On a method of describing formal deductions convenient for theoretical purposes, Nagoya Math. J. **36** (1969), 83–97.

## CONTENTS

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|  |                             |
|--|-----------------------------|
| Note on the Behavior of Solutions of Parabolic Equations with<br>Unbounded Coefficients. ....                | LU-SAN CHEN 1               |
| Asymptotic Behavior of Solutions of Parabolic Equations with<br>Unbounded Coefficients. ....                 | T. KURODA 5                 |
| Unitary Equivalence in Pairwise Spectral Analysis. ....<br>.....   | EDWARD W. BARANKIN 13       |
| On Some Doubly Transitive Permutation Groups of Degree $N$ and<br>Order $6n(n - 1)$ . ....                   | S. IWASAKI AND H. KIMURA 25 |
| Sur le Principe de Majoration de K. Yosida. ....   | M. KISHI 33                 |
| On the Uniqueness in Cauchy's Problem for Elliptic Systems with<br>Double Characteristics. ....              | K. HAYASHIDA 37             |
| Sur les Directions de Julia des Fonctions Algébroides Dans $ z  < \infty$ .<br>.....                         | N. TODA 53                  |
| Units and Class Numbers of Real Quadratic Fields. ....<br>.....  | H. YOKOI 61                 |
| The Reciprocity of Dedekind Sums and the Factor Set for the<br>Universal Covering Group of $SL(2, R)$ . .... | T. ASAI 67                  |
| Sur les Fonctions Polyharmoniques et le Problème de Riquier.<br>.....  | M. ITO 81                   |
| On the Automorphism Group of a Holomorphic Fiber Bundle over<br>A Complex Space. ....                        | H. FUJIMOTO 91              |
| Formal Foundation of Analytical Dynamics Based on the Contact<br>Structure. ....                             | M. KURITA 107               |
| On $\varepsilon$ -Entropy of Equivalent Gaussian Processes. ....   | S. IHARA 121                |
| A Characterization of the Intuitionistic Propositional Logic. ....<br>.....                                  | N. MUTI 131                 |
| On Reducibility of Provability in the Primitive Logic [LO]. ....<br>.....                                    | J. ITO 137                  |

|   |             |     |
|---|-------------|-----|
| On Some Results and conjectures on Theta Constants of odd level<br>(I). .....   | H. MORIKAWA | 145 |
| On a Classical Theta-Function. ....   | T. KUBOTA   | 183 |
| On Self-Intersection Number of a Section on a Ruled Surface.<br>.....   | M. NAGATA   | 191 |
| Über das Geschlecht und Die Klassenzahl Eines Relativ-Galoischen<br>Zahlkörpers vom Primzahlpotenzgrade. ....                     | Y. FURUTA   | 197 |
| On Permutation Groups of Prime Degree $p$ Which Contain at<br>Least Two Classes of Conjugate Subgroups of Index $p$ .<br>II. .... | N. ITO      | 201 |
| On the Singularity of Green Functions in Markov Processes II.<br>.....  | M. KANDA    | 209 |
| On the Boundary Condition of Transport Semigroup. ....  | T. WATANABE | 219 |