



Shigeo SASAKI
1912-1987

Shigeo SASAKI

1912–1987

Shigeo Sasaki, professor emeritus of Tôhoku University and former managing editor of this journal for many years, passed away in Tokyo on August 14, 1987. It is with great sorrow and regret for us to report this sad news in less than a year after the passing of another former editor Professor Tadao Tannaka.

Professor Sasaki was born in Matsuyama in Yamagata prefecture on November 18, 1912. He graduated from Tôhoku Imperial University in March, 1935 receiving the degree of Bachelor of Science in Mathematics. He was appointed to lecturer in Mathematics at Tôhoku Imperial University in December, 1936, promoted to assistant professor in June, 1944 and full professor in December, 1946. In the meantime, Tôhoku Imperial University conferred on him in July, 1943 the degree of Doctor of Science in Mathematics. In 1947, the university was renamed Tôhoku University, which he continued to serve as full professor until his retirement in March, 1976. From then until his death he served as professor at the Science University of Tokyo. In October, 1985 he was decorated with the Second Order of the Sacred Treasure.

His interest in mathematics lied in global differential geometry. As he himself amply explained in

Notes on my mathematical works, in *Shigeo Sasaki Selected Papers* (Shun-ichi Tachibana, ed.), Kinokuniya, Tokyo, 1985, 3–27,

he worked and published many papers on the following eleven topics:

1. Equivalence problems on plane curves in Lie's higher circle geometry and on minimal curves in conformal geometry.
2. Geometry of conformal connections.
3. Holonomy groups.
4. Boundary value problem for certain second order ordinary differential equations.
5. Minimal number of points of inflection on closed curves in the projective plane.
6. Global formulation of the fundamental theorem for surfaces in the three-dimensional Euclidean space.
7. Differential geometry of tangent bundles for Riemannian manifolds.
8. Total curvature of closed curves.
9. Contact Riemannian manifolds.

10. Characterization of contact transformations.
11. Complete surfaces with Gaussian curvature zero in S^8 and H^8 .

He is noted in particular for the so-called Sasakian metrics on tangent bundles on Riemannian manifolds and Sasakian manifolds among Riemannian manifolds with almost contact structures. The latter are odd-dimensional analogues, rich in interesting geometry, of Hodge manifolds in even dimension and has been playing important roles in differential geometry and topology.

He visited the Institute for Advanced Study, Princeton from September, 1952 till May, 1954.

He served as member of the board of directors of the Mathematical Society of Japan as well as many other important committees.

Editors of the Tôhoku Mathematical Journal

Major Mathematical Publications of Shigeo Sasaki

Papers and monographs in Japanese are not included.

Those papers with an asterisk * are included in

Shigeo Sasaki Selected Papers (Shun-ichi Tachibana, ed.), Kinokuniya, Tokyo, 1985.

- [1] Einige charakteristische Eigenschaften derjenigen ebenen Kurven, deren Affin- und Projektiv-normalen übereinstimmen, Proc. Imp. Acad. Tokyo 11 (1935), 403-404.
- [2] Contributions to the affine and projective differential geometries of plane curves, Japan. J. Math. 13 (1936), 111-118.
- [3] Contributions to the affine- and projective differential geometries of space curves, Japan. J. Math. 13 (1936), 473-481.
- [4] Some theorems on conformal transformations of Riemannian spaces, Proc. Phys.-Math. Soc. Japan 18 (1936), 572-578.
- [5] Non-Euclidean geometry in general space, Sci. Rep. Tôhoku Imp. Univ. (1) 26 (1937), 313-322.
- [6] On the theory of curves in a curved conformal space, Sci. Rep. Tôhoku Imp. Univ. (1) 27 (1937), 392-409.
- [7] On the theory of surfaces in a curved conformal space, Sci. Rep. Tôhoku Imp. Univ. (1) 28 (1940), 261-285.
- [8]* (with T. Suguri) On the problems of equivalence of plane curves in the Lie's higher circle geometry and of minimal curves in the conformal geometry, Tôhoku Math. J. 47 (1940), 77-86.

- [9] Geometry of the conformal connexion, Sci. Rep. Tôhoku Imp. Univ. (1) 29 (1940), 219-267.
- [10]* On a remarkable property of umbilical hypersurfaces in the geometry of the normal conformal connexion, Sci. Rep. Tôhoku Imp. Univ. (1) 29 (1940), 412-422.
- [11]* On conformal normal coordinates, Sci. Rep. Tôhoku Imp. Univ. (1) 30 (1941), 71-80.
- [12]* On the spaces with normal conformal connexions whose groups of holonomy fix a point or a hypersphere, I, Japan. J. Math. 18 (1943), 615-622.
- [13]* On the spaces with normal conformal connexions whose groups of holonomy fix a point or a hypersphere, II, Japan. J. Math. 18 (1943), 623-633.
- [14]* On the spaces with normal conformal connexions whose groups of holonomy fix a point or a hypersphere, III, Japan. J. Math. 18 (1943), 791-795.
- [15]* (with K. Yano) Sur les espaces à connexion conforme normale dont le groupes d'holonomie fixent une sphère à un nombre quelconque de dimensions, I, Proc. Imp. Acad. Tokyo 20 (1944), 525-535.
- [16]* (with K. Yano) Sur les espaces à connexion conforme normale dont le groupes d'holonomie fixent une sphère à un nombre quelconque de dimensions, II, Proc. Japan Acad. 22 (1946), 225-232.
- [17]* (with K. Yano) Sur la structure des espaces de Riemann dont le groupe d'holonomie fixe un plan à un nombre quelconque de dimensions, Proc. Japan Acad. 24 (1948), No. 7, 7-13.
- [18]* A boundary value problem of some special ordinary differential equations of the second order, J. Math. Soc. Japan 1 (1949), 79-90.
- [19]* (with K. Yano) On the structure of spaces with normal projective connexions whose groups of holonomy fix a hyperquadric or a quadric of $(N-2)$ -dimension, Tôhoku Math. J. 1 (1949), 31-39.
- [20]* On the real representation of spaces with Hermitian connexion, Sci. Rep. Tôhoku Univ. (1) 33 (1949), 53-61.
- [21]* An alternative proof of Liber's theorem, Proc. Japan Acad. 27 (1951), 73-80.
- [22] On a theorem concerning the homological structure and the holonomy groups of closed orientable symmetric spaces, Proc. Japan Acad. 27 (1951), 81-85.
- [23] On the influence of the topological structure of Riemannian manifolds upon their holonomy groups, Tôhoku Math. J. (2) 6 (1954), 135-148.
- [24] (with K. Yano) Pseudo-analytic vectors on pseudo-Kählerian mani-

- folds, *Pacific J. Math.* 5 (1955), 987–993.
- [25]* (with M. Goto) Some theorems on holonomy groups of Riemannian manifolds, *Trans. Amer. Math. Soc.* 80 (1955), 148–158.
- [26]* The minimum number of points of inflexion of closed curves in the projective plane, *Tôhoku Math. J. (2)* 9 (1957), 113–117.
- [27]* A global formulation of the fundamental theorem of the theory of surfaces in three dimensional Euclidean space, *Nagoya Math. J.* 13 (1958), 69–82.
- [28]* On the differential geometry of tangent bundles of Riemannian manifolds, *Tôhoku Math. J. (2)* 10 (1958), 338–354.
- [29]* On the total curvature of a closed curve, *Japan. J. Math.* 29 (1959), 118–125.
- [30]* On differentiable manifolds with certain structures which are closely related to almost contact structure, I, *Tôhoku Math. J. (2)* 12 (1960), 459–476.
- [31]* (with Y. Hatakeyama) On differentiable manifolds with certain structures which are closely related to almost contact structure, II, *Tôhoku Math. J. (2)* 13 (1961), 281–294.
- [32] On differentiable manifolds with (ϕ, ψ) -structures, *Tôhoku Math. J. (2)* 13 (1961), 132–153.
- [33]* On the differential geometry of tangent bundles of Riemannian manifolds, II, *Tôhoku Math. J. (2)* 14 (1962), 146–155.
- [34]* (with C.-J. Hsu) On the integrability of almost contact structure, *Tôhoku Math. J. (2)* 14 (1962), 167–176.
- [35]* (with Y. Hatakeyama) On differentiable manifolds with contact metric structures, *J. Math. Soc. Japan* 14 (1962), 249–271.
- [36] Homogeneous contact transformations, *Tôhoku Math. J. (2)* 14 (1962), 369–397.
- [37]* A characterization of contact transformations, *Tôhoku Math. J. (2)* 16 (1964), 285–290.
- [38]* On almost contact manifolds, in *Proc. U.S.-Japan Seminar in Differential Geometry* (Y. Matsushima, K. Nomizu and K. Yano, eds.), Nippon Hyoronsha, Tokyo, 1965, 128–136.
- [39] On even dimensional contact Riemannian manifolds, in *Differential Geometry in honor of K. Yano* (S. Kobayashi, M. Obata and T. Takahashi, eds.), Kinokuniya, Tokyo, 1972, 423–436.
- [40]* Spherical space forms with normal contact metric 3-structure, *J. Differential Geom.* 6 (1972), 307–315.
- [41] A proof of the fundamental theorem of hypersurfaces in a space-form, *Tensor (N.S.)* 24 (1972), 363–373.

- [42]* On complete surfaces with Gaussian curvature zero in 3-sphere, *Colloq. Math.* 26 (1972), 165–174.
- [43]* On complete flat surfaces in hyperbolic 3-space, *Kōdai Math. Sem. Rep.* 25 (1973), 449–457.
- [44]* (with W. Klingenberg) On the tangent sphere bundle of a 2-sphere, *Tôhoku Math. J. (2)* 27 (1975), 49–56.
- [45] (with C.-J. Hsu) On a property of Brieskorn manifolds, *Tôhoku Math. J. (2)* 28 (1976), 67–78.
- [46] Geodesics on the tangent sphere bundles over space forms, *J. Reine Angew. Math.* 288 (1976), 106–120.
- [47]* (with T. Takahashi) Almost contact structures on Brieskorn manifolds, *Tôhoku Math. J. (2)* 28 (1976), 619–624.
- [48]* On paracontact Riemannian manifolds, *TRU Math.* 16 (1980), 75–86.
- [49]* Contact structure on Brieskorn manifolds, in *Shigeo Sasaki Selected Papers* (S. Tachibana, ed.), Kinokuniya, Tokyo, 1985, 349–363.