

**Papers Presented to the 20th Symposium on Antarctic Meteorites held at
the National Institute of Polar Research, Tokyo
June 6–8, 1995**

1. AKAI, J., TARI, S. and TANAKA, H.
TEM study of Yamato-82042 — 5th example of thermally metamorphosed Antarctic C1 or C2 carbonaceous chondrite
2. ARAI, T., TAKEDA, H. and WARREN, P.H.
Chemical variations of spinels in Asuka-881757
3. AZEVEDO, I.S., SCORZELLI, R.B., COSTA, T.V.V., VIEIRA, V.W. and ARAÚJO, M.A.B.
Shock effects in Antarctic ordinary chondrites
4. BIRJUKOV, V.V. and ULYANOV, A.A.
Petrological study of new Antarctic carbonaceous chondrites PCA91082, TIL91722, and WIS91600
5. BORBÉLY-KISS, I., RAJTA, I., BESZEDA, I. and SZÖÖR, GY.
The investigation of spherules by Atomki scanning proton microprobe
6. BÉRCZI, SZ. and LUKÁCS, B.
Why do we not see nitroferous meteorites?
7. BÉRCZI, SZ. and LUKÁCS, B.
A comparison among chondrite compositions
8. BÉRCZI, SZ. and LUKÁCS, B.
Attempt to conjecture the pattern of Alien planetary systems
9. BÉRCZI, SZ. and LUKÁCS, B.
Possible meteorites with “Human-transformation”: Royal swords and sabres
10. BÉRCZI, SZ., HOLBA, A. and LUKÁCS, B.
Comparison of spectra of Apollo-Amor, Hungaria, belt and other asteroids in a filter-spanned colour space
11. BÉRCZI, SZ., HOLBA, A. and LUKÁCS, B.
Thermal transformations in the meteorites’ parent bodies
12. CHIKAMI, J., MIKOUCHI, T., MIYAMOTO, M. and TAKEDA, H.
Mineralogical comparison of LEW88774 with other ureilites
13. DEGAWA, Y., TOMEOKA, K. and IKEDA, Y.
Precursors of PCP in CM carbonaceous chondrites
14. DETRE, C.H. and DON, G.
Extraterrestrial spherules: A new tool for global geological and planetological correlation
15. EBIHARA, M., SHINOTSUKA, K., SHINGEN, T., TOGASHI, S., KAMIOKA, H., KOJIMA, H. and YANAI, K.
An attempt to establish a data base for chemical compositions of Antarctic meteorites
16. EUGSTER, O. and WEIGEL, A.
Angrite Asuka-881371: Break-up time from parent asteroid and comparison with other angrites
17. FEGLEY, B., Jr., LAURETTA, D.S. and KREMSEY, D.T.
The origin of troilite and pyrrhotite in chondrites: I. Iron sulfide formation kinetics in H₂S-H₂ gas mixtures
18. FUDAKI, M. and KITAMURA, M.
Finding of sector zoning in isolated olivine grains of ALH-77307 and Murchison
19. FUNAKI, M. and ISHIKAWA, N.
Collection of Yamato meteorites by the 35th Japanese Antarctic Research Expedition
20. FÖLDI, T., BÉRCZI, SZ. and LUKÁCS, B.
Search for icy meteorites on Antarctica
21. GÉVAY, G.
Can carbon quasicrystals occur in meteorites?

22. HIROI, T., PIETERS, C.M., ZOLENSKY, M.E. and LIPSCHUTZ, M.E.
Thermal metamorphism of the C, G, B, and F asteroids seen from the 3- μ m absorption band in comparison with carbonaceous chondrites
23. HONDA, M. and NAGAI, H.
Minor components in Antarctic iron meteorites
24. HOU, W.
A discussion on the origin of Antarctic Quasi-C1 chondrites and their cosmochemistry signification
25. HU, R., XIE, X. and GUO, S.
Uranium concentration in two H-group chondrites
26. ICHIKAWA, O.
Mineralogy of glassy clasts in lunar meteorite Yamato-791197
27. IKEDA, Y. and PRINZ, M.
Petrology of the Miles IIE iron with silicate inclusions: Relationship to H chondrites and primitive achondrites
28. ILLÉS-ALMÁR, E.
On two different populations of cometary sub-nuclei
29. IMAMURA, H. and NINAGAWA, K.
Thermoluminescence and cathodoluminescence of eucrites
30. INOUE, M. and NAKAMURA, N.
Chemical conditions of aqueous alteration of CM chondrites inferred from REE abundances in chondrules
31. ISHIWATARI, A., SASATANI, K., TAZAKI, K., SAKAMOTO, K., NAKANISHI, T., KOMURA, K., TSUJIMORI, T., OURA, Y., MIYAMOTO, Y., AKAHANE, H., WATANABE, M. and NUNOMURA, K.
A preliminary report on the Neagari meteorite fall on February 18th, 1995
32. KALLEMEYN, G.W.
The R chondrite group: Comparisons to other chondrite groups
33. KANAZAWA, M., BRIDGES, J.C., MISAWA, K., NAKAMURA, N. and HUTCHISON, R.
Trace element constraints on origin of SiO₂-bearing clasts in ordinary chondrites
34. KIMURA, M. and IKEDA, Y.
Anhydrous alteration of Allende chondrules in the solar nebula III: Experimental study of alteration reactions
35. KIMURA, S., KAMEI, K., TSUDA, N., SAITO, Y., KOIKE, C. and KAITO, C.
Electron microscopic and infrared spectral studies on the structure of alumina phases
36. KOJIMA, T. and TOMEOKA, K.
Textural variations of dark inclusions in the Allende CV3 chondrite
37. KONG, P. and EBIHARA, M.
Melting formation of metal phases of ordinary chondrites
38. KONG, P. and EBIHARA, M.
Studies of metallic fractions of L chondrites: Implications to L chondritic parent body
39. KUBOVICS, I., BÉRCZI, Sz., LUKÁCS, B. and SZAKMÁNY, Gy.
The meteorites in the light of the NIPR Japanese Antarctic meteorite collection
40. KUBOVICS, I., SÓLYMOS, K.G., BÉRCZI, Sz., LUKÁCS, B., SZAKMÁNY, Gy. and TÖRÖK, K.
Experimental investigations on ALHA 77005 Shergottite sample from Antarctica
41. LAURETTA, D.S., KREMSER, D.T. and FEGLEY, B., Jr.
The origin of troilite and pyrrhotite in chondrites: II. Comparative studies of metal-sulfide assemblages
42. LIN, W.
Comet impact as a cause of the origin of tektites
43. LODDERS, K.
Experimental partitioning of rare earth elements between sulfides (FeS, CaS) and silicate melt and applications to enstatite achondrites

44. LUKÁCS, B.
On some ancient meteorite falls
45. MARAKUSHEV, A.A., MITREIKINA, O.B., ZINOVIEVA, N.G. and GRANOVSKY, L.B.
Genesis of diamondiferous mineralization in meteorites
46. MATSUNAMI, S. and SATO, T.
Re-evaluation of enstatite-oldhamite geothermometer: Formulation and the application to E-chondrites
47. MATSUOKA, K., NAKAMURA, T., NAKAMUTA, Y. and TAKAOKA, N.
Yamato-86789: A thermally metamorphosed CM-like carbonaceous chondrite
48. MCKAY, G., CROZAZ, G., MIKOUCHI, T. and MIYAMOTO, M.
Petrology of Antarctic Angrites LEW 86010, LEW 87051 and Asuka-881371
49. MIKOUCHI, T., MIYAMOTO, M. and MCKAY, G.A.
Mineralogical study of angrite Asuka-881371: Its possible relation to angrite LEW87051
50. MIURA, Y. and OKAMOTO, M.
New X-ray and compositional data of shocked quartz with high density from Ries impact crater
51. MIURA, Y. and OKAMOTO, M.
Shocked calcite and Fe grains from Ries impact crater
52. MIURA, Y., OKAMOTO, M., FURUMOTO, M. and FUKUCHI, T.
Material evidences of Takamatsu impact crater in Japan
53. NAGAHARA, H. and OZAWA, K.
Stability of silicate melt in the solar nebula
54. NAGAO, K. and MIURA, Y.N.
Trapped noble gas component of Brenham pallasite
55. NAKAMURA, T. and NAKAMUTA, Y.
X-ray study of PCP from the murchison CM carbonaceous chondrites
56. NAKAMURA, T., SEKIYA, M., MATSUOKA, K. and KOJIMA, H.
Compound chondrules from Antarctic carbonaceous and unequilibrated ordinary chondrites
57. NAKAMURA, T., TAKAOKA, N., NAGAO, K. and SEKINE, T.
Shock effects on noble-gas abundance in the experimentally shocked Allende meteorite
58. NAKASHIMA, T., NAGAO, K., FUJIWARA, T., MISAWA, K., NAKAMURA, N., KAGAMI, H., YANAI, K. and KOJIMA, H.
Chemical compositions, Rb-Sr isotopic systematics and K-Ar age of the shocked H chondrite Y-790746
59. NAYAK, V.K.
Origin of monomict autochthonous breccia from the lonar impact crater, India
60. NINAGAWA, K., HOSHIKAWA, Y., YAMAMOTO, I., WADA, T., MATSUNAMI, S., TAKAOKA, N., BENOIT, P., SEARS, D.W.G., KOJIMA, H. and YANAI, K.
Thermoluminescence of Japanese Antarctic meteorites
61. NOGUCHI, T. and ISHIKAWA, K.
Matrix of Colony (CO3) chondrite
62. NOGUCHI, T.
A TEM study of microstructure in silicates in the CK chondrites
63. NOMURA, K. and MIYAMOTO, M.
Hydrothermal experiments on refractory minerals related to Ca-Al-rich inclusions (CAIs) in carbonaceous chondrites: Implication for aqueous alteration in parent bodies
64. PREMO, W.R. and TATSUMOTO, M.
Pb isotopic systematics of angrite Asuka-881371
65. PRINZ, M. and WEISBERG, M.K.
Asuka-881371 and the angrites: Origin in a heterogeneous, CAI-enriched, differentiated, volatile-depleted body
66. RÓZSA, P., BRAUN, M. and SZÖÖR, Gy
Geochemical and petrogenetic evaluation of the glassy microspherules from upper

- pannonian layers of borehole nagylózs 1, NW Hungary
67. SAIKI, K. and TAKEDA, H.
Magma differentiation trend deduced from four polymict eucrites
 68. SATO, T., MATSUNAMI, S. and NINAGAWA, K.
Cathodoluminescence of Semarkona chondrules: A classification and the relationships with mesostasis composition
 69. SEKIYA, M. and NAKAMURA, T.
Which occurred earlier, the settling of dust particles and the formation of chondrules in the solar nebula? - Implication from compound chondrules
 70. SHIBATA, Y.
Subdivision of metamorphic grade of CO₃ chondrites and the occurrence of cohenite in Y-81020, Y-81025 and Y-74135
 71. SUGIURA, N., KIYOTA, K. and ZASHU, S.
Nitrogen isotopic compositions of some gas-rich chondrites
 72. SZŐÖR, GY.
Spherules in the little Hungarian plain
 73. TACHIBANA S., TSUCHIYAMA A. and KITAMURA M.
Incongruent evaporation experiments on troilite (stoichiometric FeS)
 74. TAKEDA, H., OTSUKI, M., MIKOUCHI, T. and MIYAMOTO, M.
Records of crustal evolution in some Antarctic eucrites
 75. TAKEDA, H.
Alteration of coarse grained CAI in Allende meteorite
 76. TANAKA, H. and AKAI, J.
EPMA and TEM study on matrix mineralogy of Allende (CV3)
 77. TAZAWA, Y., FUKUOKA, T., YAMANOUCHI, E., MIYANO, Y., ENDO, K., KOHNO, M. and FUJII, Y.
Possible cosmic spherules in the Mizuho ice core, Antarctica
 78. TOMEOKA, K. and KOJIMA, T.
Aqueous alteration of the Allende CV3 chondrite: A hydrothermal experiment
 79. TSUCHIYAMA, A.
Evaporation behavior of mineral dust in the primordial solar nebula
 80. WARREN, P.H. and DAVIS, A.M.
Consortium investigation of the Asuka-881371 angrite: Petrographic, electron microprobe, and ion microprobe observations
 81. WARREN, P.H., KALLEMEYN, G.W. and MAYEDA, T.
Consortium investigation of the Asuka-881371 angrite: Bulk-rock geochemistry and oxygen isotopes
 82. XIE, X. and CHEN, M.
Occurrences of high-pressure mineral polymorphs in two shocked chondrites
 83. XIE, X., CHEN, M., ZHAO, B. and WANG, W.
The behavior of metallic phase in shocked chondrites
 84. YADA, T., NAKAMURA, T. and TAKAOKA, N.
Formation process of magnetic spherules in deep-sea sediments
 85. YAMAGUCHI, A., TAYLOR, G.J. and KEIL, K.
Eucrites: Global crustal metamorphism by burial on vesta
 86. YUGAMI, K., TAKEDA, H. and MIYAMOTO, M.
Mineral distribution and the opaque grain shapes of primitive achondrites
 87. ZINNER, E.
Circumstellar grains in meteorites: A new window to the stars
 88. ZINOVIEVA, N.G., MITREIKINA, O.B. and GRANOVSKY, L.B.
Specific pyroxene-olivine chondrules of the Yamato-82133 (H3) chondrite: Evidence of the evolution of redox conditions during the chondrule formation