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FINAL TECHNICAL REPORT

Title of Grant: Carbonaceous Chondrites: Early Irradiation and ^{244}Pu Fission Records

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Final Report

The focus of investigations throughout this work has been the carbonaceous meteorites. The studies which have been conducted have evolved from investigations of early irradiation to mineralogic and petrologic studies of refractory inclusions and to an examination of the time scales of alteration processes on the parent bodies. Much has been learned, and many new questions have been posed. The attached papers and abstracts provide the details. These studies are now continuing under NASA grant NAG9-49.

CARBONACEOUS CHONDRITES
IRRADIATION
PETROLOGY
MINERALOGY
INCLUSIONS
REFRACTORY MATERIALS

PARTICLE TRACKS
PLUTONIUM ISOTOPES
NUCLEAR FISSION

List of Abstracts under NASA Grant NSG7121

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Mafic silicates in Orgueil. J.F. Kerridge and J.D. Macdougall, Meteoritics 10, 424.

Late compaction of C2 chondrites? B.K. Kothari and J.D. Macdougall, Meteoritics 10, 428.

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Irradiation features in meteoritic and lunar gas-rich breccias: A comparison. J.D. Macdougall and B. Martinek, Trans. Am. Geophys. Union 56, 1015.

1976

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Particle track distributions in Murchison (C2) inclusions. J.D. Macdougall, Meteoritics 11, 325.

Unusual anhydrous mineral assemblage in the Alais (C1) meteorite. J.D. Macdougall and J.F. Kerridge, Meteoritics 11, 326.

The search for the Holy Grail and why Orgueil is not it. J.F. Kerridge, Meteoritics 11, 308-309.

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Charge composition of solar flare heavy nuclei at 4 B.Y. before present. J.N. Goswami and J.D. Macdougall, Meteoritics 12, 242-243.

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CI regolith period: clues from particle tracks. J.D. Macdougall, Meteoritics 13, 543.

Clues to the origin of sulfide materials in CI chondrites. J.F. Kerridge, J.D. Macdougall and K. Marti, Meteoritics 13, 512-513.

Magnesium isotopes in hibonite-bearing inclusions from CM meteorites. D. Phinney, J.D. Macdougall and B. Whitehead, 10th Lunar Planetary Science Conf., 975-977.

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Refractory spherules and inclusions in Murchison. J.D. Macdougall, Meteoritics 14, 477-478.

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Characteristics of ancient solar flare heavy nuclei. J.N. Goswami, D. Lal and J.D. Macdougall, Conf. on the Ancient Sun, Lunar and Planetary Institute, 40-42.

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Irradiation features in different inclusion types in CM chondrites. J.N. Goswami and J.D. Macdougall, 11th Lunar Planetary Science Conf., 354-356.

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Refractory inclusions in CM meteorites: petrographic studies. J.D. Macdougall, J.N. Goswami and J. Carlson, Meteoritics 15, 327-328.

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Are Orgueil carbonates contemporary with parent body formation? J.D. Macdougall, G.W. Lugmair and J.F. Kerridge, 14th Lunar and Planetary Science Conf., 454-455.

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A constraint on impact theories of chondrule formation. J.F. Kerridge and S.W. Kieffer, Earth Planet. Sci. Lett. 35, 35-42.

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Fractionation of refractory lithophile element among chondritic meteorites. J.F. Kerridge, Proc. Lunar Planet. Sci. Conf. 10th, 989-996.

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