

## Specification of petrological subtype of Dar al Gani 194 chondritic meteorite and analysis of its matrix mineralogy

# Takeshi Iwamura[1], Hirokazu Fujimaki[1], Kiyotaka Ninagawa[2], Noriyuki Suzuki[3]

[1] Inst. Min. Pet. Econ. Geol., Tohoku Univ., [2] Applied Phys. Okayama Univ. of Science, [3] Earth and Planetary Sci., Hokkaido Univ.

Dar al Gani 194 meteorite is a carbonaceous chondrite found in the Sahara Desert in about 1999. About this meteorite, nobody studied in detail, so we clarified that this meteorite belonged to CO group from its bulk composition and mode composition last year. The all of CO chondrites belongs to petrological type 3, and they experienced both thermal metamorphism and aqueous alteration. However, examples of petrography and analysis are poor in a quality of carbonaceous chondrites. In this study, I specified a petrological subtype of DaG 194 and report it because I accomplished a classification of DaG 194. In addition, I made clear mineral assemblage of its matrix in this study and tried to add consideration about degree of a thermal metamorphism and an aqueous alteration looked at in DaG 194.

Two thin sections were made for specification of a petrological subtype in this study. I analyzed chemical composition of minerals included in chondrules and matrix using EPMA of WDS and EDS. And powder sample was made for analyze thermoluminescence properties and cathodoluminescence properties. In this study, I used Raman spectrograph for analysis of mineral assemblage and mineral distribution of matrix part. However beam diameter of Raman spectrograph was about 1 micro meter and was bigger than size of minerals in matrix, it needed only a few seconds for one identification, so I used this method to analysis of wide area of matrix.

By comparison with Sears et al.(1991) and Scott and Jones(1990), chemical compositions of olivines and thermoluminescence properties suggested that DaG 194 belonged to petrological subtype 3.1-3.2 nevertheless chemical compositions of kamacites and matrices suggested subtype 3.3-3.4. Beam diameter of EDS was also bigger than grainsizes of matrix and according to analysis precision becoming low. And, correlation of composition of kamacite and petrologic subtype is not linear, so I think that true subtype of DaG 194 is 3.1-3.2.

On the other hand, by analysis with Raman spectrograph, possibility that most of matrix of DaG 194 was consisted of amorphous materials was suggested. In CO chondrites, Brearley(1993,1994) suggested that matrix of subtype 3.0 consisted of amorphous materials, nevertheless matrices of other subtypes were dominated by olivine. In this study, matrix mineralogy suggested different degree of thermal metamorphism from it suggested by mineral compositions and thermoluminescence properties. However, as for mineral identification with Raman spectrograph, analysis example is poor, and I think that it is necessary to add inspection to identification of matrix mineralogy of DaG 194 more.