

Wednesday, March 17, 2004
ACHONDRITES: AN AWESOME ASSORTMENT
8:30 a.m. Marina Plaza Ballroom

Chairs: L. E. Nyquist
M. Stimpfl

- 8:30 a.m. Yang J. * Goldstein J. I.
Nucleation of the Widmanstätten Pattern in Iron Meteorites [#1288]
 We propose a new nucleation mechanism of the Widmanstätten pattern in meteorites and evaluate all known mechanisms. Three mechanisms are applicable mechanisms depending on bulk Ni and bulk P. Their implications to cooling rate have been discussed.
- 8:45 a.m. Campbell A. J. * Humayun M.
Compositions of the Group IVB Iron Meteorites [#2002]
 Siderophile element abundances in group IVB iron meteorites are used to evaluate the contributions of nebular and parent body processes to their formation.
- 9:00 a.m. Nyquist L. E. * Takeda H. Shih C.-Y. Wiesmann H.
Sm-Nd Age and Initial $87\text{Sr}/86\text{Sr}$ for Yamato 980318: An Old Cumulate Eucrite [#1330]
 ^{147}Sm - ^{143}Nd and ^{146}Sm - ^{142}Nd ages of 4560 ± 150 and 4561 ± 24 Ma (relative to 4558 Ma for angrite LEW86010) indicate an old initial crystallization age for cumulate eucrite Y980318. Younger ages ~ 4430 Ma for some cumulate eucrites may have been reset.
- 9:15 a.m. Gardner K. G. * Mittlefehldt D. W.
Petrology of New Stannern-trend Eucrites and Eucrite Genesis [#1349]
 Our study includes the petrological analysis of 4 new Stannern-trend eucrites. Findings include several samples with atypical textures and one polymict breccia with an intermediate composition between the Stannern-trend eucrites and main group.
- 9:30 a.m. Mittlefehldt D. W. *
The Dichotomous HED Meteorite Suite [#1553]
 You can model all of the eucrites some of the time, and some of the eucrites all of the time, but not all of the eucrites all of the time.
- 9:45 a.m. Senshu H. * Matsui T.
Early Thermal Evolution of HED Parent Body [#1557]
 We conducted a numerical calculation of early thermal history of HED parent body by taking into account impact heating and cooling, sintering, radio heating, and the thermal evolution of planetesimals.
- 10:00 a.m. BREAK
- 10:15 a.m. Stimpfl M. * Ganguly J. Princivalle F. Cheng W.
Thermal History of the Lodranite Yamato 74357: Constraints from Compositional Zoning and Fe-Mg Ordering [#2036]
 Modeling of compositional zoning in spinel and of the Fe-Mg ordering state in orthopyroxene allowed determination of the cooling rate for this primitive achondrite. The data are consistent with a cooling rate of $\sim 6^\circ\text{C}/100$ yr below 1000°C .

- 10:30 a.m. Nakamura N. * Ohashi S. Kida E. Morikawa N. Yamashita K. Okano O. Kobayashi T.
Late Thermal Evolution of Acapulcoites-Lodranites Parent Body: Evidence from Sm-Nd Isotopes and Trace Elements of the LEW 86220 Acapulcoite [#1524]
The Sm-Nd internal isochron age of 4.13 ± 0.10 was obtained for the acapulcoite LEW 86220, indicating that a late metamorphic event occurred in the acapulcoite-lodranite parent body.
- 10:45 a.m. Ford R. * McCoy T. J. Rushmer T. Benedix G. K. Corrigan C. M.
Partial Melting Under Reducing Conditions: How are Primitive Achondrites Formed? [#1095]
Partial melting under reducing conditions of ordinary chondrites may help to constrain conditions under which primitive achondrites formed. Experiments compare geochemistry and behavior of certain lithophile elements.
- 11:00 a.m. Hudon P. * Romanek C. Paddock L. Mittlefehldt D. W.
Evolution of the Ureilite Parent Body [#2075]
New carbon isotope measurements were performed on a suite of 27 ureilites. Using these new data and data from the literature, a new scenario is proposed for the formation of the ureilite parent body.
- 11:15 a.m. Warren P. H. *
Complex, Contrasting Behavior of Chromium During Late-Stage Processes in Ureilites [#2151]
The behavior of Cr during the late stages of ureilite formation may provide important clues to the processes involved, and to the general issue of the "smelting" of ureilites. In NWA766, olivine reduced rims near Cr-spinels show Cr enrichment.
- 11:30 a.m. Mikouchi T. * McKay G. A. Jones J. H.
Sahara 99555 and D'Orbigny: Possible Pristine Parent Magma of Quenched Angrites [#1504]
We propose that Sahara 99555 and D'Orbigny have a pristine parent melt composition of the quenched angrites that is not contaminated by the olivine xenocryst component, and discuss its relationship to the partial melts of carbonaceous chondrites.
- 11:45 a.m. Jurewicz A. J. G. * Jones J. H. Mittlefehldt D. W. Longhi J.
Devolatilized-Allende Partial Melts as an Analog for Primitive Angrite Magmas [#1417]
The recently described D'Orbigny angrite has a bulk composition almost identical in major elements to a previously reported melt of (devolatilized) Allende. This observation has petrogenetic significance for the origins of the angrite clan.