Chaoite C

Crystal Data: Hexagonal. *Point Group:* $6/m\ 2/m\ 2/m$. As thin lamellae, 3–15 μm wide, alternating with graphite.

Physical Properties: Hardness = Slightly harder than graphite [1–2]. VHN = n.d. D(meas.) = n.d. D(calc.) = 3.43

Optical Properties: Opaque. *Color:* Black.
R_1–R_2: n.d.

Cell Data: *Space Group:* $P6/mmm$. a = 8.948 c = 14.078 Z = 168

X-ray Powder Pattern: Nördlinger Ries crater, Germany.
4.47 (100), 4.26 (100), 4.12 (80), 3.03 (60), 2.55 (60), 2.28 (60), 3.71 (40)

Chemistry:

	(1)
C	99.5
Si	< 0.5
Cl	< 0.5
Total	100.0

(1) Nördlinger Ries crater, Germany; by electron microprobe, grain containing 35% chaoite.

Polymorphism & Series: Polymorphous with diamond, graphite, and lonsdaleite.

Occurrence: In shock-metamorphosed graphite gneisses and meteorites.

Association: Graphite, zircon, rutile, pseudobrookite, magnetite, nickeliferous pyrrhotite, baddeleyite.

Distribution: From Mottingen, in the Nördlinger Ries crater, Bavaria, Germany. In the Goalpara [??Goalpur??D8??ck??] and Dyalpur achondrite meteorites. [Novo Urei stony meteorite??addbutckname,type??]

Name: For Edward Ching-Te Chao (1919–), Chinese-American petrologist with the U.S. Geological Survey, Washington, D.C, USA.

Type Material: n.d.

References: (1) El Goresy, A. and G. Donnay (1968) A new allotriomorphic form of carbon from the Ries Crater. Science, 161, 363–364. (2) (1969) Amer. Mineral., 54, 326 (abs. ref. 1). (3) El Gorsey, A. (1969) Eine neue Kohlenstoff-Modifikation aus dem Nördlinger Ries. Naturwissenschaften, 56, 493–494 (in German). (4) (1970) Amer. Mineral., 55, 1067 (abs. ref. 3). (5) Smith, P.P.K. and P.R. Buseck (1982) Carbyne forms of carbon: do they exist? Science, 216, 984–986. (6) (1983) Amer. Mineral., 68, 1251 (abs. ref. 5). (7) Sobolev, V.V., V.Y. Slobodskoy, S.N. Selyukov, and A.A. Udoyev (1986) Some conversions of chaoite to other carbon phases. Zap. Vses. Mineral. Obshch., 115, 218–221 (in Russian).