Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As polycrystalline aggregates to 40 μm, commonly as pseudomorphs of chromite crystals or its fragments less than 1 μm.

Physical Properties: *Cleavage*: n.d. *Tenacity*: n.d. *Fracture*: n.d. Hardness = > 5.5
D(meas.) = n.d. D(calc.) = 5.342

Optical Properties: [Opaque.] *Color*: Light gray in reflected light. *Streak*: n.d. *Luster*: [Metallic.]
Optical Class: n.d.
R: (470) 19.9, (546) 19.7, (589) 18.6, (650) 17.6

Cell Data: *Space Group*: *Bbmm*. a = 9.462(6) b = 9.562(9) c = 2.916(1) Z = 4

X-Ray Diffraction Pattern: Suizhou meteorite.
2.675 (100), 1.953 (90), 1.566 (60), 1.337 (40), 2.389 (20), 1.439 (15), 1.425 (15)

Chemistry:

	(1)
MgO	2.47
FeO	29.35
MnO	0.55
TiO_2	2.71
Cr_2O_3	57.46
Al_2O_3	6.07
V_2O_3	0.92
Total	99.53

(1) Suizhou meteorite; average electron microprobe analysis supplemented by Raman spectroscopy; corresponding to $(Fe_{0.87}Mg_{0.13}Mn_{0.01})_{\Sigma=1.01}(Cr_{1.62}Al_{0.25}Ti_{0.08}V_{0.02})_{\Sigma=1.97}O_4$.

Polymorphism & Series: High pressure polymorph of $FeCr_2O_4$.

Occurrence: In a shock vein in a L6 chondrite meteorite, formed by solid-state transformation of chromite under shock-induced high pressure and temperature (Suizhou).

Association: Ringwoodite, majorite, lingunite, tuite, olivine, pyroxene, chromite (Suizhou); chenmingite, chromite, Fe-Cr-rich ulvöspinel (Tissint).

Distribution: In the Suizhou meteorite [TL]. In the Tissint martian meteorite.

Name: Honors Professor Xiande *Xie*, former president of the International Mineralogical Association (1990 to 1994) for his contributions to mineralogy and shock effects on minerals.

Type Material: Geological Museum, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences.

References: (1) Chen, M., J. Shu, and H.K. Mao (2008) Xieite, a new mineral of high-pressure $FeCr_2O_4$ polymorph. Chinese Science Bulletin, 53(21), 3341-3345. (2) Ma, C., O. Tschauner, J.R. Beckett, Y. Liu, E. Greenberg, and V.B. Prakapenka (2019) Chenmingite, $FeCr_2O_4$ in the $CaFe_2O_4$-type structure, a shock-induced, high-pressure mineral in the Tissint martian meteorite. Amer, Mineral., 104(10), 1521-1525.