**Crystal Data**: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As elongated inclusions in pyrrhotite to 20 $\mu$m (Jordan) or in diamond to ~2 $\mu$m (Brazil).

**Physical Properties**: Cleavage: n.d. *Tenacity*: n.d. *Fracture*: n.d. Hardness = n.d.; 4.5-5 (Israel) D(meas.) = n.d. D(calc.) = 4.609; 5.217 (Israel)

**Optical Properties**: Transparent; opaque (Israel). *Color*: Bright green; black (Israel). *Streak*: n.d. *Luster*: n.d.; submetallic (Israel).
*Optical Class*: n.d.

**Cell Data**: *Space Group*: *Pnma*. $a$ = 9.0875(2) $b$ = 2.9698(1) $c$ = 10.6270(3) Z = 4

**X-ray Powder Pattern**: Zohar wadi, near Arad, southern part of the Hatrurim Basin, Israel.
2.567 (100), 2.424 (69), 2.418 (62), 2.589 (54), 1.767 (35), 2.148 (34), 4.434 (23)

**Chemistry**:

| | (1) |
|---|---|
| $TiO_2$ | 1.27 |
| $Fe_2O_3$ | 1.43 |
| $Cr_2O_3$ | 65.44 |
| $Al_2O_3$ | 1.71 |
| SrO | 0.54 |
| CaO | 27.95 |
| MgO | 0.62 |
| Total | 98.96 |

(1) Jordan; average electron microprobe and Raman spectroscopic analyses; corresponding to $(Ca_{1.00}Sr_{0.01})_{\Sigma=1.01}(Cr^{3+}_{1.79}Al_{0.07}Ca_{0.04}Fe^{3+}_{0.04}Ti^{4+}_{0.03}Mg_{0.03})_{\Sigma=2.00}O_4$. (2) Mato Grosso State, Brazil; EDX analysis as atomic percent Ca 35.72, Cr 57.02, Fe 1.93, Mg 0.79, Mn 0.69, Al 0.80, Ti 1.09, V 1.96; corresponds to $Ca_{1.07}(Cr_{1.71}Fe^{3+}_{0.06}V_{0.06}Ti_{0.03}Al_{0.0307}Mg_{0.02}Mn_{0.02})_{\Sigma=1.93}O_4$.

**Occurrence**: In pyrometamorphic paralava (Israel) and spurite marble (Jordan). In a diamond (Brazil). Forms under highly reduced conditions at high temperatures (>1000 °C).

**Association**: Calcite, ettringite, mcconnellite, fluorapatite, priscillagrewite-(Y), brownmillerite-srebrodolskite series, cuprite (Jordan); ferropericlase (+magnesioferrite), orthorhombic $MgCr_2O_4$, iron carbide, graphite (Brazil); Cr-rich pyrrhotite, gehlenite, rankinite, larnite-flamite, Si-rich perovskite, fluorapatite, cuspidine, chromite-magnesiochromite, hydrated calcium silicates (Israel).

**Distribution**: From the Tulul Al Hammam area, Daba-Siwaqa area, central Jordan (holotype). From Zohar wadi, near Arad, southern Hatrurim Basin, Israel. In a diamond from gravels, Sorriso Creek, a tributary of Rio Aripuanã, Mato Grosso State, Brazil (cotype).

**Name**: Honors Russian mineralogist and petrologist *Ellina* Vladimirovna Sokol (b. 1961) from IGM, Novosibirsk, Russia, a specialist in the studies of pyrometamorphic and combustion metamorphic rocks worldwide, including the Hatrurim Formation (Mottled Zone), Israel-Jordan.

**Type Material**: A.E. Fersman Mineralogical Museum, RAS, Moscow (5439/1 holotype), the Central Siberian Geological Museum, Sobolev Institute of Geology and Mineralogy, Siberian Branch of the RAS, Novosibirsk (VII-102/1 holotype), and the Vernadsky Institute of Geochemistry and Analytical Chemistry, Moscow (Kaminsky collection, 8/108 cotype), Russia.

**References**: (1) Sharygin, V.V., S.N. Britvin, F.V. Kaminsky, R. Wirth, E.N. Nigmatulina, G.A. Yakovlev, K.A. Novoselov, and M.N. Murashko (2021) Ellinaite, $CaCr_2O_4$, a new natural post-spinel oxide from Hatrurim Basin, Israel, and Juína kimberlite field, Brazil. Eur. J. Mineral., 33, 727-742. (2) Galuskina, I.O., M. Stachowicz, K. Woźniak, Y. Vapnik, and E. Galuskin (2021) Mcconnellite, $CuCrO_2$ and ellinaite, $CaCr_2O_4$, from varicoloured spurrite marble of the Daba-Siwaqa area, Hatrurim Complex, Jordan. Mineral. Mag., 85, 387-397.