Crystal Data: Monoclinic. *Point Group*: 2/*m*. Prismatic crystals, to ~0.3 mm, display {111}, {100}, {010}, and {001} elongated along [101], in subparallel and divergent intergrowths. *Twinning*: [001/010/100] twinning by metric merohedry identified in the analysis of structure data.

Physical Properties: *Cleavage*: Good on {010}. *Tenacity*: Brittle. *Fracture*: Curved. Hardness = ~ 2 D(meas.) = 3.30(2) D(calc.) = 3.278 Bright green fluorescence under a 405 nm laser. Easily soluble in H₂O.

Optical Properties: Transparent. *Color*: Yellow. *Streak*: Very pale-yellow. *Luster*: Vitreous. *Optical Class*: Biaxial (-). $\alpha = 1.560(2)$ $\beta = 1.582(2)$ $\gamma = 1.583(2)$ 2V(meas.) = 17(1)° 2V(calc.) = 23.8° *Dispersion*: None. *Orientation*: X = b, $Z \approx [101]$. *Pleochroism*: X = colorless, *Y* and Z = yellow. *Absorption*: $X < Y \approx Z$.

Cell Data: Space Group: $P2_1/n$. a = 17.3982(4) b = 12.8552(3) c = 17.4054(12) $\beta = 96.649(7)^{\circ}$ Z = 8

X-Ray Diffraction Pattern: Green Lizard mine, Red Canyon, San Juan Co., Utah, USA. 6.45 (100), 2.816 (52), 3.214 (40), 4.081 (38), 4.275 (33), 5.69 (30), 2.591 (30)

Chemistry:		(1)	(2)
-	$(NH_4)_2O$	5.42	5.47
	UO ₃	59.75	59.94
	SO_3	25.12	25.17
	H_2O	[9.41]	9.44
	Total	99.70	100.00

(1) Green Lizard mine, Red Canyon, San Juan Co., Utah, USA; average electron microprobe analysis supplemented by Raman spectroscopy, H_2O calculated from structure; corresponds to $(NH_4)_{1.99}U_{2.00}S_{3.00}O_{21}H_{10.00}$. (2) $(NH_4)_2[(UO_2)_2(SO_4)_3(H_2O)_2] \cdot 3H_2O$.

Occurrence: Secondary, associated with post-mining oxidation of asphaltum-rich sandstone beds laced with uraninite and sulfides in a damp underground environment.

Association: Chinleite-(Y), gypsum, pyrite, Co-rich rietveldite.

Distribution: At the Green Lizard mine, Red Canyon, White Canyon District, San Juan Co., Utah, USA.

Name: Honors German/American nuclear chemist Heino *Nitsche* (1949-2014) for his work on nuclear and radiochemistry of heavy elements, nuclear forensics, the chemistry of irradiated materials, and the confirmation of elements 114 (flerovium, Fl) and 117 (tennessine, Ts). In 2014, Nitsche received the Hevesy Medal, the premier international award of excellence for his achievements in radioanalytical and nuclear chemistry.

Type Material: Natural History Museum of Los Angeles County, Los Angeles, California, USA (71503 and 71504).

References: (1) Kampf, A.R., T.A. Olds, J. Plášil, B.P. Nash, and J. Marty (2022) Nitscheite, (NH₄)₂[(UO₂)₂(SO₄)₃(H₂O)₂]·3H₂O, a new mineral with an unusual uranyl-sulfate sheet. Amer. Mineral., 107, 1174-1180.