

## 405 meV EELS stretc H<sub>2</sub>O vacuum O-H stretch normalized intensity O-D stretch H<sub>o</sub>O $D_{2}O + H_{2}O$ 600 250 300 350 400 450 500 550 (meV)

Isotopic sensitivity in EELS: monochromated (MC) EELS of  $H_2O$  vs  $D_2O$  in a Boron Nitride liquid cell. J. Jokisaari et al., Adv. Mat., in print (2018)



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EELS fine structure changes due to temperature-dependent metal-insulator transition: MC-EELS ( $\delta E = 140$ meV) core-loss of V<sub>2</sub>O<sub>3</sub> at room- and LN<sub>2</sub>- temperatures. Courtesy L. Bocher and X. Li, CNRS Orsay (2018)



Electric field mapping with sub-Å resolution: a) Electron beam deflection by Coulomb attraction to nuclei. b) HAADF detector image of  $DyScO_3$  unit cell. c-e) Ronchigrams from a 4D dataset corresponding to three probe positions over the Dy double column (P1-P3). f-h) Center of mass weighted Ronchigrams for the probe positions P1-P3. i) Direction and magnitudes of the field plotted across the unit cell. J. Hachtel et al., ORNL, JACSI, in print (2018)