

## **Description of Additional Supplementary Files**

**Supplementary Movie 1:** Temporal evolution of one-colour PINEM images of a single VO<sub>2</sub> NW with P1 optical pulse (duration of 50 fs,  $\lambda = 800$  nm, fluence of  $\sim 4.1$  mJ/cm<sup>2</sup>) polarized perpendicularly to the NW axis.