Extremely Light Carrier-Effective Mass in a Distorted Simple Metal Oxide

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FIG. 1. Schematic crystal toy models of (left) complex metal oxide and (right) simple metal oxide. In this study, we focused NbO$_2$ as the simple metal oxide.

FIG. 2. Carrier electron transport properties at room temperature. (left) resistivity, (center) thermopower, (right) carrier effective mass. The carrier effective mass in the [11-2] direction is lighter than the other directions.

Fast electron transport path was found in a rutile structured NbO$_2$ driven by built-in structural distortion.