

## Data for: Visualizing electrostatic gating effects in two-dimensional heterostructures

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### ARPES, optical spectroscopy and GW data

#### Figure 1.

e)

+5V

Wave: SMP0924\_007\_k

Type: Double Float 64 bit

Rows: 93 Start: 1.6 Delta: -0.0227 Units: eV

Columns: 109 Start: 1.09773 Delta: 0.00936395 Units: k x

Data Units:

Size: 81509 bytes

0V

Wave: SMP0924\_007\_k

Type: Double Float 64 bit

Rows: 93 Start: 1.6 Delta: -0.0227 Units: eV

Columns: 109 Start: 1.09773 Delta: 0.00936395 Units: k x

Data Units:

Size: 81509 bytes

-5V

Wave: SMP0924\_008\_k

Type: Double Float 64 bit

Rows: 93 Start: 1.6 Delta: -0.0227 Units: eV

Columns: 109 Start: 1.17551 Delta: 0.00931121 Units: k x

Data Units:

Size: 81509 bytes

f) Figure1f.txt contains the data points and error bars, tab delimited

#### Figure 2.

d) upper

Wave: MLWSe2

Type: Double Float 64 bit

Rows: 278 Start: 5.555 Delta: -0.0216 Units: eV

Columns: 343 Start: 1.596 Delta: -0.00603291 Units: kII

Data Units:

Size: 763232 bytes

Lower

Wave: 1LWSe2vg3p35\_sym  
Type: Single Float 32 bit  
Rows: 191 Start: 4.335 Delta: -0.0262 Units: eV  
Columns: 520 Start: 1.5637 Delta: -0.00602277 Units: k  
Data Units:  
Size: 397680 bytes

e) upper  
Wave: 2LWSe2\_sym  
Type: Single Float 32 bit  
Rows: 247 Start: -5.555 Delta: 0.0243 Units: eV  
Columns: 530 Start: 1.582 Delta: -0.00597067 Units: k  
Data Units:  
Size: 524040 bytes

Lower  
Wave: 2LWSe2vg3p35\_sym  
Type: Single Float 32 bit  
Rows: 191 Start: -4.059 Delta: 0.0262 Units: eV  
Columns: 446 Start: 1.37 Delta: -0.00613674 Units: k  
Data Units:  
Size: 341144 bytes

f) upper  
Wave: 3LWSe2\_sym  
Type: Single Float 32 bit  
Rows: 247 Start: -5.555 Delta: 0.0243 Units: eV  
Columns: 564 Start: 1.665 Delta: -0.00590339 Units: k  
Data Units:  
Size: 557632 bytes

Lower  
Wave: 3LWSe2Vg3p35\_sym  
Type: Single Float 32 bit  
Rows: 191 Start: -4.505 Delta: 0.0262 Units: eV  
Columns: 434 Start: 1.32896 Delta: -0.00614039 Units: k  
Data Units:  
Size: 331976 bytes

GW data in folder project-wse2-gw with explanations there.

### Figure 3.

Wave: 2p50V  
Type: Double Float 64 bit  
Rows: 300 Start: 19.6 Delta: 0.0105 Units: eV  
Columns: 132 Start: -0.34761 Delta: 0.00530525 Units: k ||  
Data Units:

Size: 317209 bytes

Wave: 2p25V

Type: Double Float 64 bit

Rows: 300 Start: 19.2 Delta: 0.0105 Units: eV

Columns: 132 Start: -0.34454 Delta: 0.0052584 Units: k ||

Data Units:

Size: 317209 bytes

Wave: 2p00V

Type: Double Float 64 bit

Rows: 300 Start: 18.4 Delta: 0.0105 Units: eV

Columns: 132 Start: -0.338318 Delta: 0.00516343 Units: k ||

Data Units:

Size: 317209 bytes

Wave: 1p75V

Type: Double Float 64 bit

Rows: 300 Start: 18.65 Delta: 0.0105 Units: eV

Columns: 132 Start: -0.340274 Delta: 0.0051933 Units: k ||

Data Units:

Size: 317209 bytes

Wave: 1p50V

Type: Double Float 64 bit

Rows: 300 Start: 18.9 Delta: 0.0105 Units: eV

Columns: 132 Start: -0.34222 Delta: 0.00522299 Units: k ||

Data Units:

Size: 317209 bytes

Wave: 1p25V

Type: Double Float 64 bit

Rows: 300 Start: 19.15 Delta: 0.0105 Units: eV

Columns: 132 Start: -0.344155 Delta: 0.00525252 Units: k ||

Data Units:

Size: 317209 bytes

Wave: 1p00V

Type: Double Float 64 bit

Rows: 300 Start: 19.4 Delta: 0.0105 Units: eV

Columns: 132 Start: -0.346078 Delta: 0.00528188 Units: k ||

Data Units:

Size: 317209 bytes

Wave: 0p75V

Type: Double Float 64 bit

Rows: 300 Start: 19.65 Delta: 0.0105 Units: eV

Columns: 132 Start: -0.347991 Delta: 0.00531107 Units: k ||

Data Units:  
Size: 317209 bytes

Wave: 0p50V  
Type: Double Float 64 bit  
Rows: 300 Start: 19.9 Delta: 0.0105 Units: eV  
Columns: 132 Start: -0.349894 Delta: 0.00534011 Units: k ||  
Data Units:  
Size: 317209 bytes

Wave: 0p25V  
Type: Double Float 64 bit  
Rows: 300 Start: 20.15 Delta: 0.0105 Units: eV  
Columns: 132 Start: -0.351786 Delta: 0.00536899 Units: k ||  
Data Units:  
Size: 317209 bytes

Wave: 0p00V  
Type: Double Float 64 bit  
Rows: 300 Start: 20.4 Delta: 0.0105 Units: eV  
Columns: 132 Start: -0.353669 Delta: 0.00539772 Units: k ||  
Data Units:  
Size: 317209 bytes

Wave: -0p25V  
Type: Double Float 64 bit  
Rows: 300 Start: 20.65 Delta: 0.0105 Units: eV  
Columns: 132 Start: -0.355541 Delta: 0.0054263 Units: k ||  
Data Units:  
Size: 317210 bytes

Wave: -0p50V  
Type: Double Float 64 bit  
Rows: 300 Start: 20.9 Delta: 0.0105 Units: eV  
Columns: 132 Start: -0.357403 Delta: 0.00545472 Units: k ||  
Data Units:  
Size: 317210 bytes

Wave: -0p75V  
Type: Double Float 64 bit  
Rows: 300 Start: 21.5 Delta: 0.0105 Units: eV  
Columns: 132 Start: -0.361834 Delta: 0.00552234 Units: k ||  
Data Units:  
Size: 317210 bytes

Wave: -1p00V  
Type: Double Float 64 bit  
Rows: 300 Start: 21.65 Delta: 0.0105 Units: eV

Columns: 132 Start: -0.362933 Delta: 0.00553912 Units: k ||  
Data Units:  
Size: 317210 bytes

Wave: -1p25V  
Type: Double Float 64 bit  
Rows: 300 Start: 21.4 Delta: 0.0105 Units: eV  
Columns: 132 Start: -0.361099 Delta: 0.00551113 Units: k ||  
Data Units:  
Size: 317210 bytes

Wave: -1p50V  
Type: Double Float 64 bit  
Rows: 300 Start: 21.4 Delta: 0.0105 Units: eV  
Columns: 132 Start: -0.361099 Delta: 0.00551113 Units: k ||  
Data Units:  
Size: 317210 bytes

Wave: -1p75V  
Type: Double Float 64 bit  
Rows: 300 Start: 21.4 Delta: 0.0105 Units: eV  
Columns: 132 Start: -0.361099 Delta: 0.00551113 Units: k ||  
Data Units:  
Size: 317210 bytes

Wave: -2p00V  
Type: Double Float 64 bit  
Rows: 300 Start: 21.4 Delta: 0.0105 Units: eV  
Columns: 132 Start: -0.361099 Delta: 0.00551113 Units: k ||  
Data Units:  
Size: 317210 bytes

Wave: -2p25V  
Type: Double Float 64 bit  
Rows: 300 Start: 21.2 Delta: 0.0105 Units: eV  
Columns: 132 Start: -0.359626 Delta: 0.00548864 Units: k ||  
Data Units:  
Size: 317210 bytes

Wave: -2p50V  
Type: Double Float 64 bit  
Rows: 300 Start: 21.2 Delta: 0.0105 Units: eV  
Columns: 132 Start: -0.359626 Delta: 0.00548864 Units: k ||  
Data Units:  
Size: 317210 bytes

Figure 4.

a)

Wave: 1LWSe2  
Type: Double Float 64 bit  
Rows: 278 Start: -5.555 Delta: 0.0216 Units: eV  
Columns: 343 Start: 1.596 Delta: -0.00603291 Units: kII  
Data Units:  
Size: 763232 bytes

Wave: 1LWSe2Vg2p05  
Type: Double Float 64 bit  
Rows: 191 Start: 4.24 Delta: -0.0262 Units: eV  
Columns: 269 Start: 1.58 Delta: -0.00592424 Units: kII  
Data Units:  
Size: 411432 bytes

Wave: 1LWSe2Vg3p75  
Type: Double Float 64 bit  
Rows: 191 Start: -4.38 Delta: 0.0262 Units: eV  
Columns: 278 Start: 1.53 Delta: -0.00600937 Units: kII  
Data Units:  
Size: 425184 bytes

Wave: 1LWSe2Vg4p75  
Type: Double Float 64 bit  
Rows: 191 Start: -4.405 Delta: 0.0262 Units: eV  
Columns: 258 Start: 1.394 Delta: -0.00618951 Units: kII  
Data Units:  
Size: 394624 bytes

b)

Band gap data for the graph is in the files Device 1 gap data.txt and Device 3 gap data.txt

PL data  
Wave: PLE  
Type: Double Float 64 bit  
Rows: 1024 Start: 705.717 Delta: 0.0867136 Units:  
Columns: 81 Start: -2 Delta: 0.125 Units:  
Data Units:  
Size: 663952 bytes