1 # Supplementary Information: Electrical properties of disordered films of
2 # van der Waals semiconductor WS_2 on paper

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12 ## Table of contents

13 The supplementary information contains a video about the film deposition and a section about the random resistor
14 network model.

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16 ## Resistors network solver

17 Fig. S1 show four different resistor networks generated as artificial Brownian surfaces through synthetic surface
18 generator in Gwyddion 2.64 with different Hurst exponents and stationarity scale to control the amount of high
19 (spatial) frequency noise.
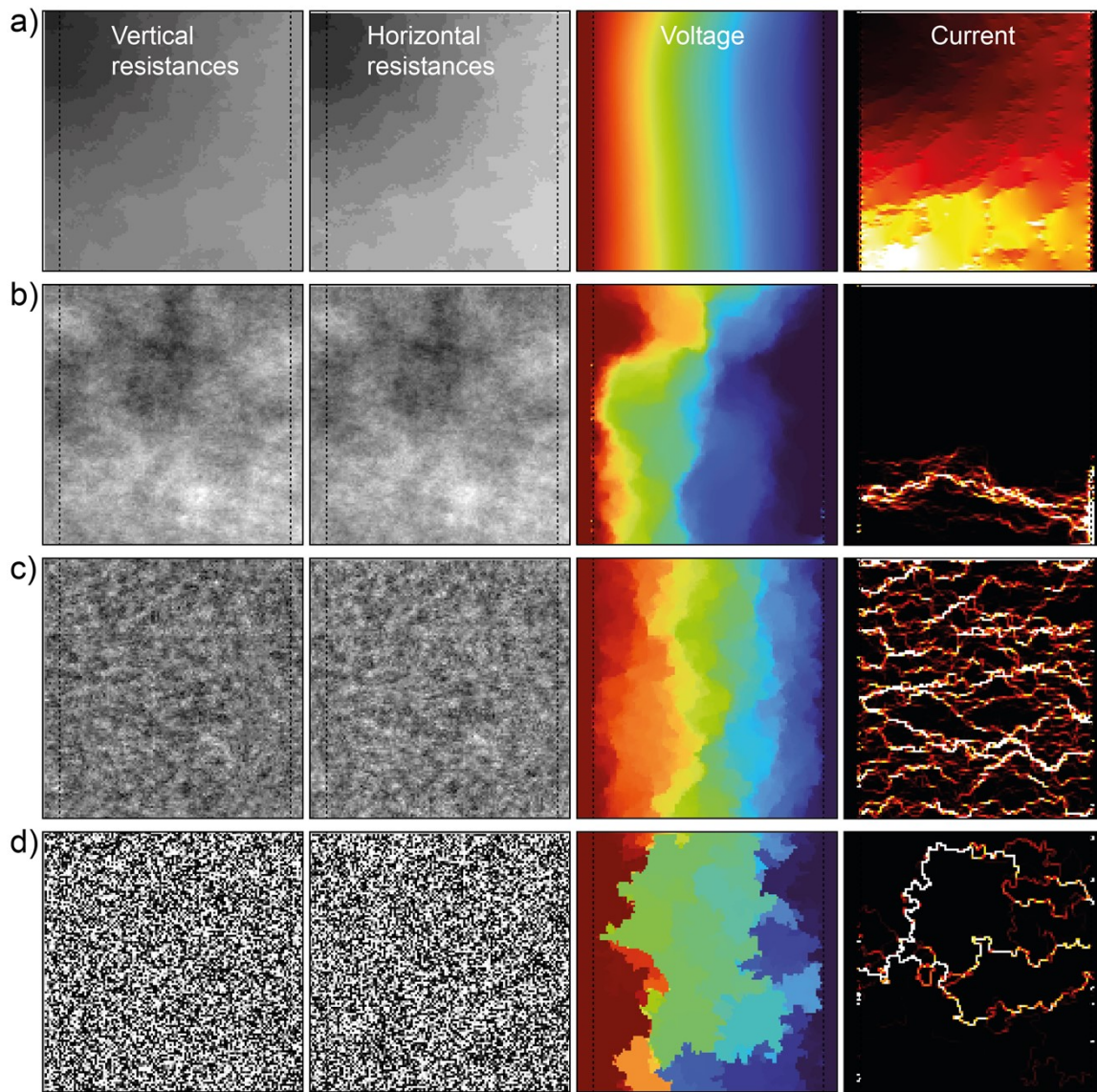
Figure S1: **Additional random resistance networks model.** a) First and second column: RRN composed of 120x120 resistors, respectively vertically aligned resistors (left) and horizontally aligned ones (right). Black corresponds to higher resistance values and white to lower ones. Third column: calculated voltage across the RRN with boundary conditions V=1 V on the far-left side (in red) and V=0 V on the far-right side (in blue). Fourth column: current density calculated from the resistance and voltage maps. b-d) Same as panel (a) but for increasing high frequency random noise in the resistors networks (high frequency noise increases from top to bottom).