

Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: In situ Joule heating at low magnification

File Name: Supplementary Movie 2

Description: In situ Joule heating at high magnification

File Name: Supplementary Movie 3

Description: In situ Joule heating captured with 300 fps at low magnification

File Name: Supplementary Movie 4

Description: In situ Joule heating captured with 200 fps at high magnification

File Name: Supplementary Movie 5

Description: In situ radiation heating

File Name: Supplementary Movie 6

Description: Temperature evolution on a CNF through FEA simulation

File Name: Supplementary Movie 7

Description: MD simulation of Pt cluster on five-layer T-graphite edge plane at 1800 K

File Name: Supplementary Movie 8

Description: MD simulation of Pt cluster on fifteen-layer T-graphite edge plane at 300 K

File Name: Supplementary Movie 9

Description: MD simulation of Pt cluster on fifteen-layer T-graphite edge plane at 1800 K