

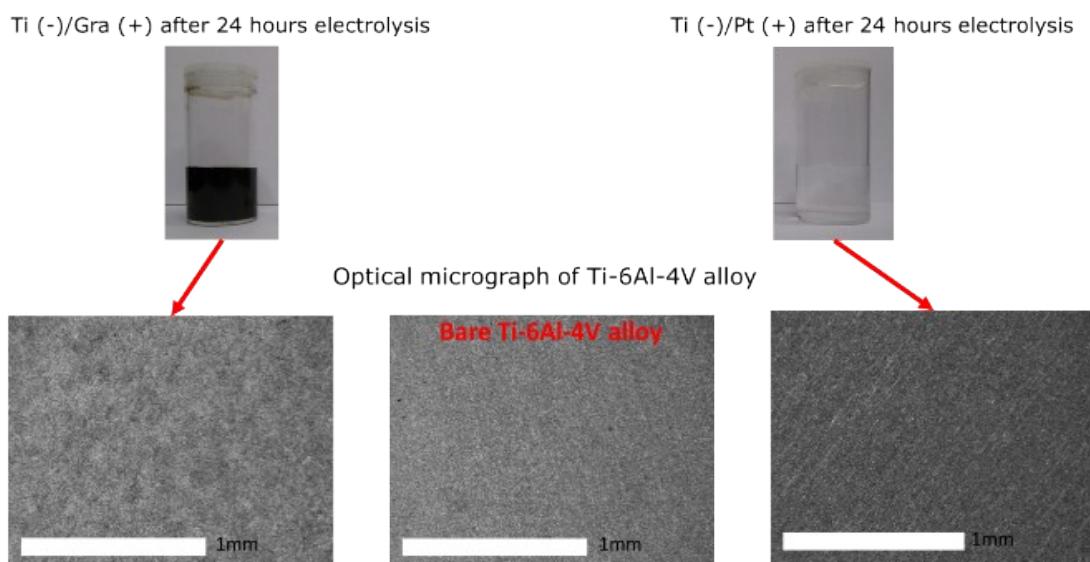
SUPPLEMENTARY INFORMATION

**Low-Voltage Carbon Films Deposition by Electro-Exfoliation of Graphite into Graphene Oxide**

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Scheme 1. Optical micrographs of the cathode surfaces after the electrolysis process by employing graphite (left) and platinum (right) as anodes.

Table S1. Experimental conditions used in other works for carbon films deposition.

Cathode	Anode	Distance /mm	Electrolyte	Potential or Current	Reference
SnO <sub>2</sub> /Glass	Graphite	7	Acetic acid/water	0-5000 V	1
Si (111)	Graphite	1	Ethanol	80 V	2
SnO <sub>2</sub> /Glass	Graphite	7	Acetic acid/water	2.14 V	3
Titanium grade 1	Graphite	4	ACN and DMF	1200 V	4
Ti6Al4V	Graphite	7	ACN and DMF	0-2000 V	5
SnO <sub>2</sub> /Glass	Graphite	7	Formic Acid/water	0-30 V	6
Si (100)	Graphite	8	ACN	16 V	7
Si (100)	Graphite/Pt	6	Methanol/PPh <sub>3</sub>	1200 V	8
SnO <sub>2</sub> /Glass	Graphite	7	Chloroacetic acid/water	3 V	9
A284 Steel	Graphite	4	Acetic acid/water	8-16 V	10

SnO <sub>2</sub> /Glass	Graphite	7	Acetic acid/water	2.4 V	11
Si (100)	Graphite	10	Methanol	2400 V	12
Si (100)	Graphite	10	Methanol	1600 V	13
Copper	Graphite	2	Ethanol/water/K Cl	60-100 V	14
Aluminum	Graphite	4	ACN	0-2000 V	15
Aluminum	Graphite	4	DMF	0-2000 V	16
ITO/Glass	Graphite	7	DMF	2000 V	17
ITO/Glass	Graphite	7	CAN, DMF, methanol, nitromethane, nitroethane and ethanol	2000 V	18
Si(100)/Graphite	Graphite/Si(100)	7	ACN	0-4000 V	19
Aluminum	Graphite	4	ACN and DMF	0-2000 V	20
Si	Not specified	NS	DMF	Pulsed 0-2000 V	21
SnO <sub>2</sub> /Glass	Graphite	7	Acetic Acid/water	0-20 V	22
Si (100) and ITO	Graphite	10	Methanol, Ethanol, ACN, DMF	1600 V	23
SS	Graphite	6	2-propanol	Pulsed 0-1000 V	24
Si (100) and ITO	Graphite	4	Ethanol and Methanol	0-1200 V	25
ITO	Graphite	4	DMF	Pulsed 0-800 V	26
Si	Graphite	4	Methanol	Pulsed 0-2400 V	27
Si (100)	Graphite/Pt	3	Ethanol/water	1000-2700 V	28
Si (400)	Graphite	7	Methanol/Urea	0-3000 V	29
Molybdenum	Graphite	7	Methanol/ Camphor	0-3000 V	30
Aluminum	Graphite	7	Methanol	800-1400 V	31
Si (100)	Graphite	4	Methanol/Urea	600 V	32
Aluminum	Graphite	6	DMF	800-1600 V	33
Si	Graphite	7	DMSO/Acetic Acid	150 V	34
Titanium Grade 1	Not specified	NS	DMF and acetonitrile	1200 V	35
Nickel and Tungsten	Graphite	>10	Methanol	10-20 mA	36
Si	Graphite	7	DMSO	150 V	37
ITO	Graphite	NS	Acetic	2.47V	38

			Acid/water		
Steel	Graphite	NS	Acetic Acid/water	2.47V	39
Si (100)	Graphite	Tube U	Alfa/beta-pinenes/n-hexane	2-3 mA cm <sup>-2</sup>	40
Si (111)	Graphite	9	Methanol	1500 V	41
Si (100)	Graphite	7	Methanol	1200 V	42
Si (100)	Graphite	10	Methanol	Pulsed 0-1000 V	43
Si (100)	Graphite	NS	Methanol/Urea	1600 V	44
Si (111)	Tungsten	2	Ethanol	2000 V	45
Si (100)	Si (100)	25	Ethanol/water	80-300 V	46
Si	Platinum	5	Ethanol	0-1000 V	47
Gold	Platinum	NS	DMSO/Li acetylide	0 to 2.5 V CV	48
Pt/Si (111)	Not specified	NS	DMSO/Li acetylide	400 uA	49
Titanium grade 1	Platinum	9	Methanol	200-2000 V	50
SS ASTM 304	Not specified	NS	DMSO/Li acetylide	0.2 mA	51
SS ASTM 304	Not specified	NS	DMSO/Li acetylide	1200 V	52
Nickel	Platinum	15	Ethanol/water/ NaCl	130 V	53
Si	Graphite	7	ACN	1600 V	54
Si (100)	Platinum	6	DMF	1400 V	55
Nickel	Platinum	NS	Acetylene/ ammonia	1.4-6.0 V	56
Ni, Co, Fe	Not specified	NS	Acetylene/ ammonia	2.0-5.0 V	57
Si (100)	Platinum	8	Methanol	1200 V	58
Ti-6Al-4V	Graphite	7	Formic Acid/water	8 V	This Work

NS → Not specified

DMSO → dimethyl sulfoxide

ACN → acetonitrile

DMF → dimethylfomamide

PPh<sub>3</sub> → Triphenylphosphine

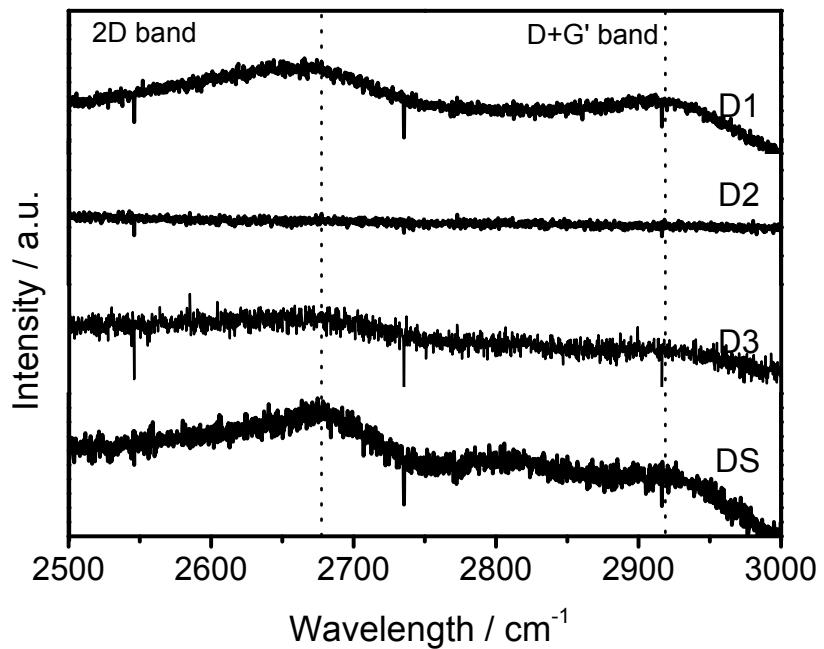


Fig. S1. Raman spectra of the cathode surfaces obtained from the Table 1 experiments and dried solution D1 after electrolysis.

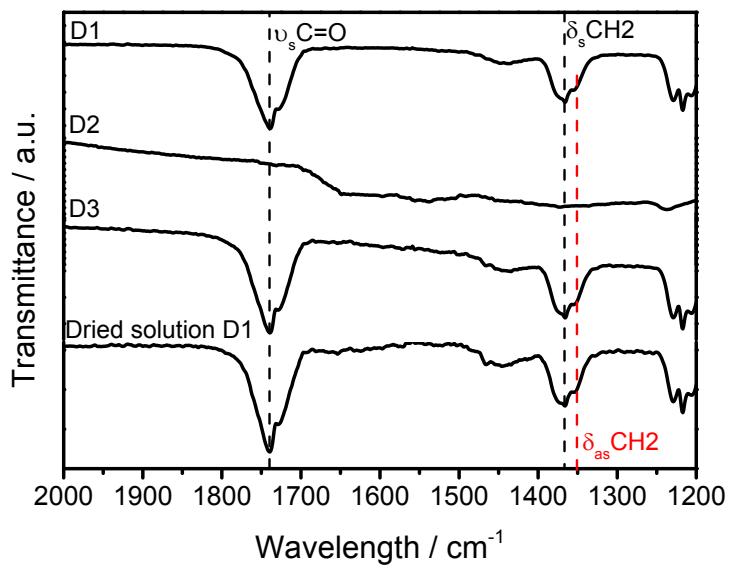


Fig S2. ATR-FTIR spectra of the cathode surfaces prepared in the experiments described in Table 1. Zoom between 2000 and 1200 cm<sup>-1</sup>.

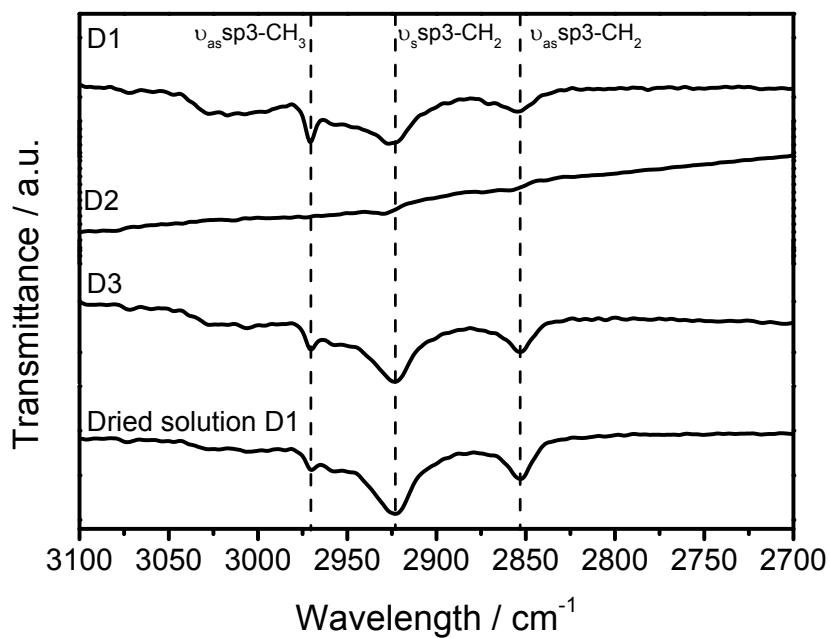
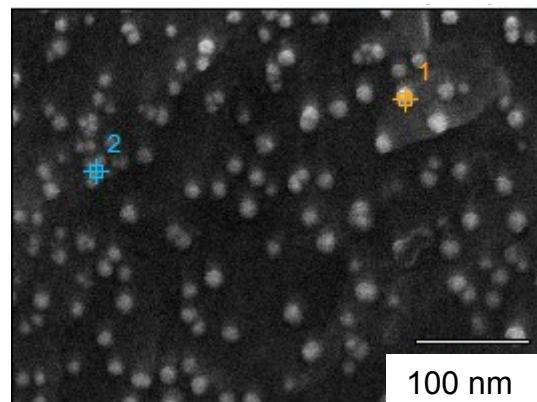
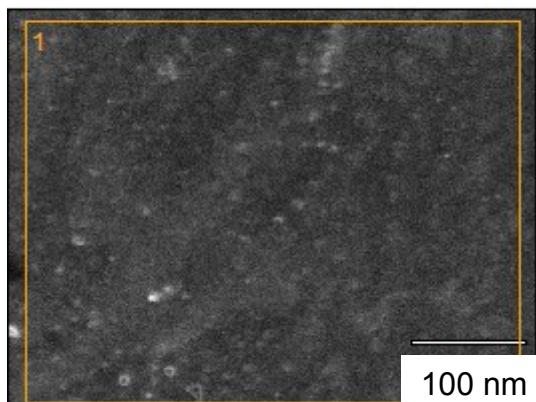


Fig S3. ATR-FTIR spectra of the cathode surfaces prepared in the experiments described in Table 1. Zoom between 3100 and 2700 cm<sup>-1</sup>.



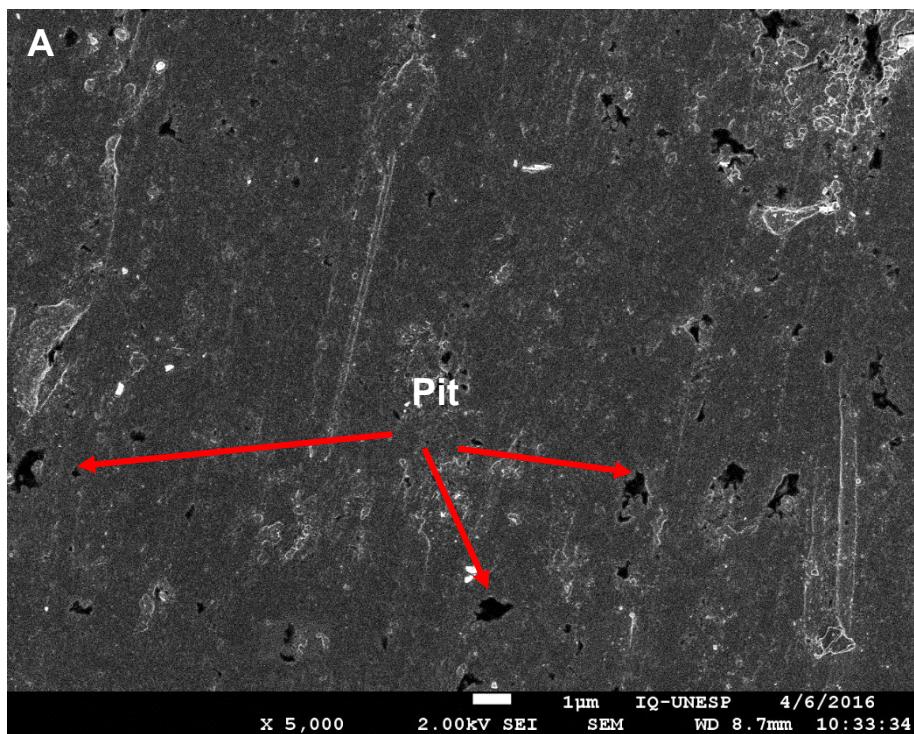
	<i>Al-K</i>	<i>Ti-K</i>	<i>V-L</i>
<i>spot 1</i>	11.28	71.28	17.44
<i>spot 2</i>	11.04	76.54	12.42

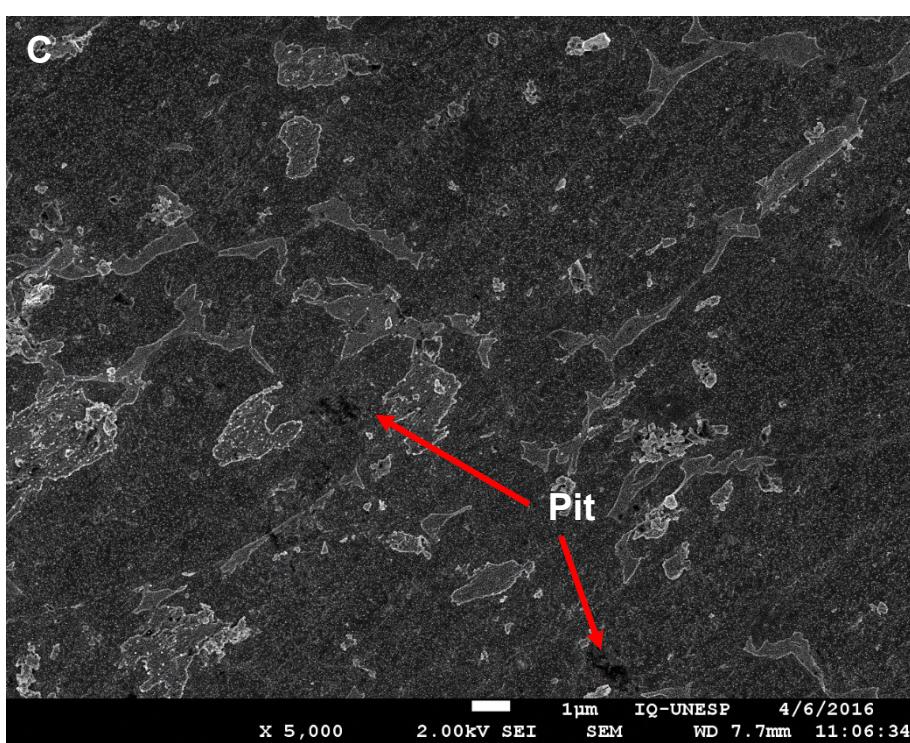
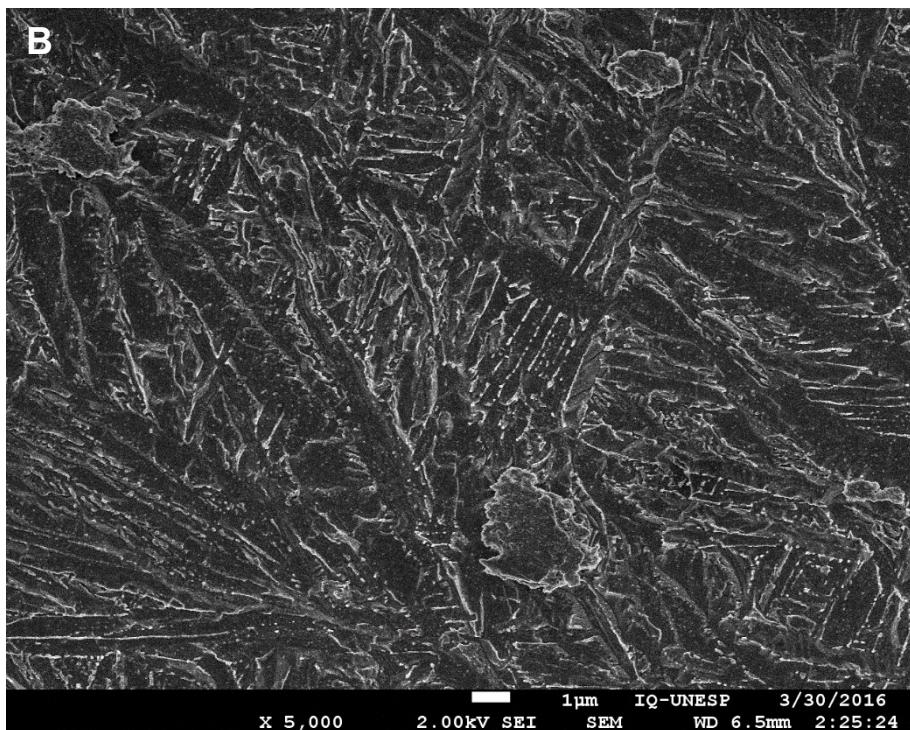
Fig S4. SEM image of sample D2 and EDS analysis in two different spots.



	<i>Al-K</i>	<i>Ti-K</i>	<i>V-L</i>
<i>Region 1</i>	8.71	84.49	6.79

Fig S5. SEM image of Ti-6Al-4V sample after pre-treatment with oxalic acid solution and EDS surface analysis.





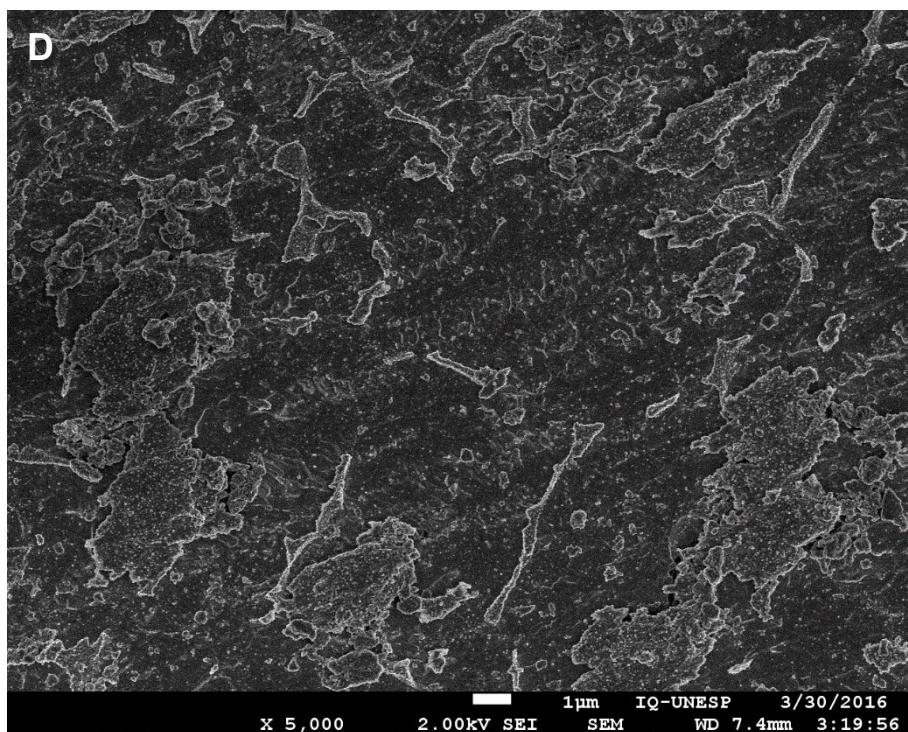


Fig S6. SEM images of: A) Cathode bare surface, B) D1, C) D2 and D) D3.



Fig. S7. (Left) As-prepared GO solution diluted 10 times in water. (Right) Reduced GO (rGO) obtained after the addition of 2 mL of 0.1 mol L<sup>-1</sup> ascorbic acid and heating at 70 °C for 12 hours.

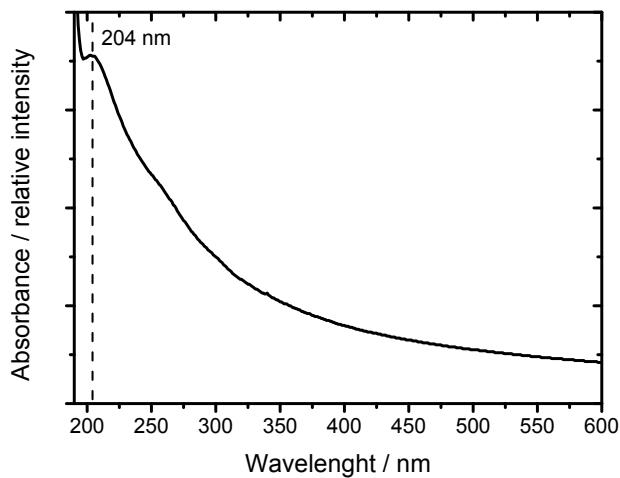


Fig. S8. UV-Vis spectrum of as-prepared solution diluted 10 times in water.

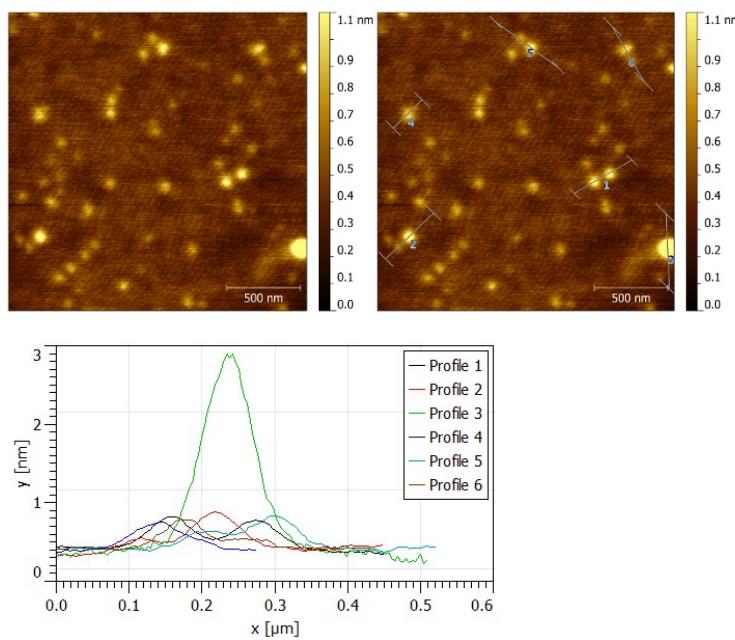


Fig S9. AFM images of D1 solution on Si (111) substrate and the corresponding depth profile of the particles.

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