



Supplementary Materials

Light Absorption Enhancement and Laser-Induced Damage Ability Improvement of Aluminum Alloy 6061 with Non-Porous Alumina/CdSe@Al₂O₃/SiO₂ Functional Gradient Films

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The experimental system consists of a single longitudinal mode SAGA-S laser Nd:YAG laser, collimated light source, focusing lens, attenuator, aperture, an EPM2000 energy calorimeter, a sample carrier (two-dimensional adjustable, step-by-step accuracy is 10 μ m), an optical microscope and a computer. The experimental setup is depicted below.

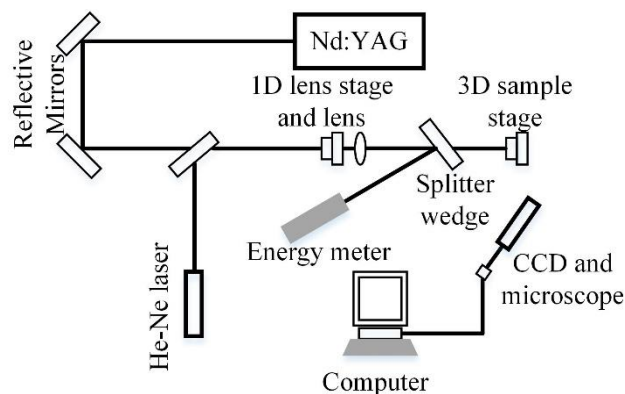


Figure S1. Schematics of laser irradiation damage testing equipment.

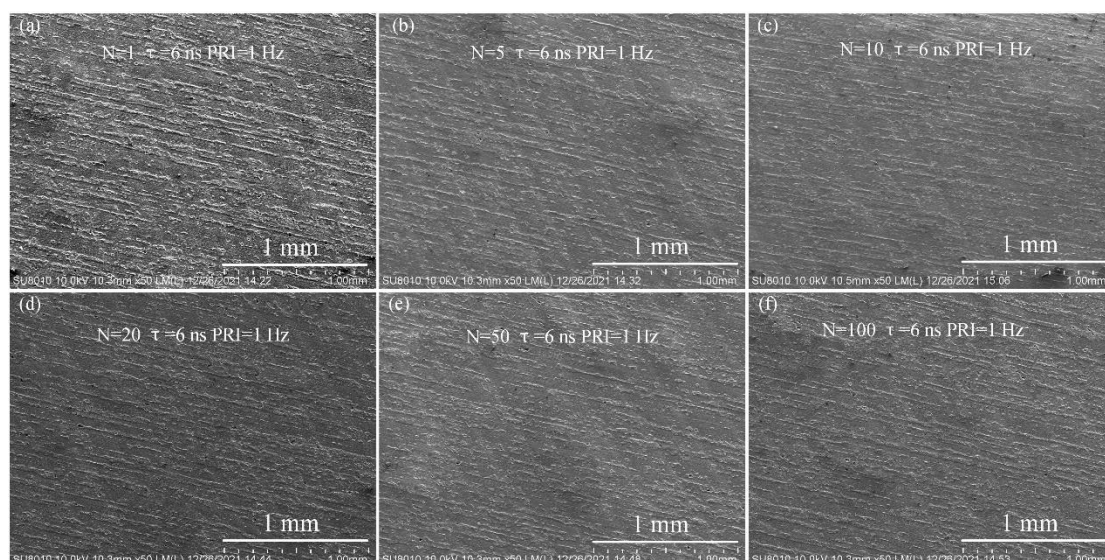


Figure S2. 355-nm Nd:YAG laser irradiation of aluminum alloy 6061 with functional layers at a fluence of 0.5 J/cm² at (a) 1 time, (b) 5 time, (c) 10 time, (d) 20 time, (e) 50 time, (f) 100 time irradiation.

Table S1. Particles generated by different laser irradiation times with laser fluence of 0.5 J/cm² of AA 6061 without functional layers.

S. no	Diameters of particles (μm)				
	0.3	0.5	1.0	5.0	10.0
1	2141	572	199	3	0
2	10618	4142	1127	25	1
3	1112	252	52	0	0
4	5638	1807	504	6	0
5	1957	538	206	5	0
6	789	144	30	0	0
7	2296	561	145	2	0
8	2514	689	193	9	1
9	2179	459	116	5	0
10	1090	215	62	2	0
11	488	86	13	0	0
12	725	115	18	0	0
13	451	58	5	0	0
14	802	115	20	1	0
15	2182	495	156	9	0

Table S2. Particles generated by different laser irradiation times with laser fluence of 0.5 J/cm² with functional layers.

S. no	Diameters of particles (μm)		
	0.3	0.5	1.0
1	77	16	8
2	380	89	32
3	103	18	13
4	60	21	18
5	87	14	4
6	43	8	4
7	38	1	1
8	37	4	2
9	20	1	0
10	14	1	0
11	21	1	0
12	22	4	1
13	24	1	1
14	21	0	0
15	24	2	2