Supplementary Material

Studies on the Characteristics of Nanostructures Produced by Sparking Discharge Process in the Ambient Atmosphere for Air Filtration Application

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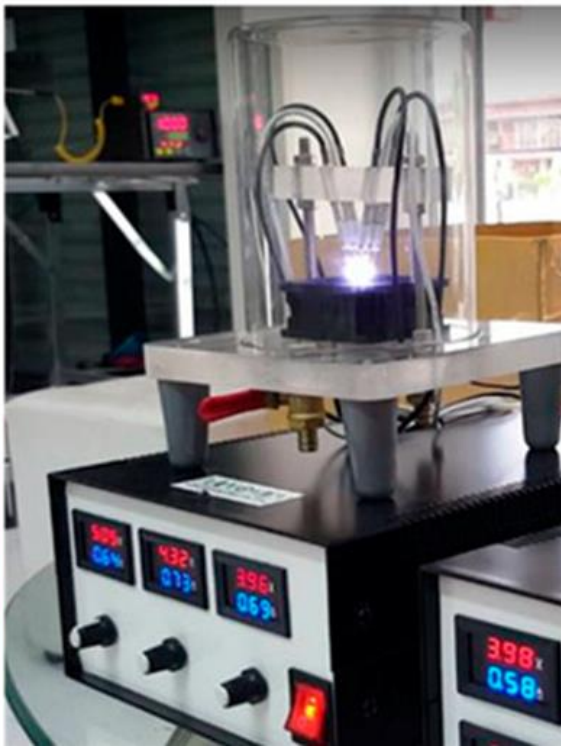
Electronic Supplementary Figure 1. Chronological representation of sparking machine apparatus from first prototype to current advanced version. Figure 1a first sparking machine (2004) prototype, used to create nanoparticles seed for nanotube growth; Figure 1b Multiheaded open air sparking machine for surface modification (2009) Figure 1c 2015 static head sparking machine model in commercial production (Image source ref 1.) Figure 1d Multiheaded sparking machine for high surface areas, model for surface modification (Image source ref 1.) Figure 1e Novel advance sparking machine model, automated and suitable for controlled conditions, (2019) (Image source ref 2.).

1. Ručman, S.S.; Punyodom, W.; Jakmunee, J.; Singjai, P. Inducing Crystallinity of Metal Thin Films with Weak Magnetic Fields without Thermal Annealing. *Crystals* **2018**, *8*, 362.
2. Pooseekheaw, P.; Thongpan, W.; Panthawan, A.; Kantarak, E.; Sroila, W.; Singjai, P. Porous V_2O_5/TiO_2 Nanoheterostructure Films with Enhanced Visible-Light Photocatalytic Performance Prepared by the Sparking Method. *Molecules* **2020**, *25*, 3327

Supplementary Material

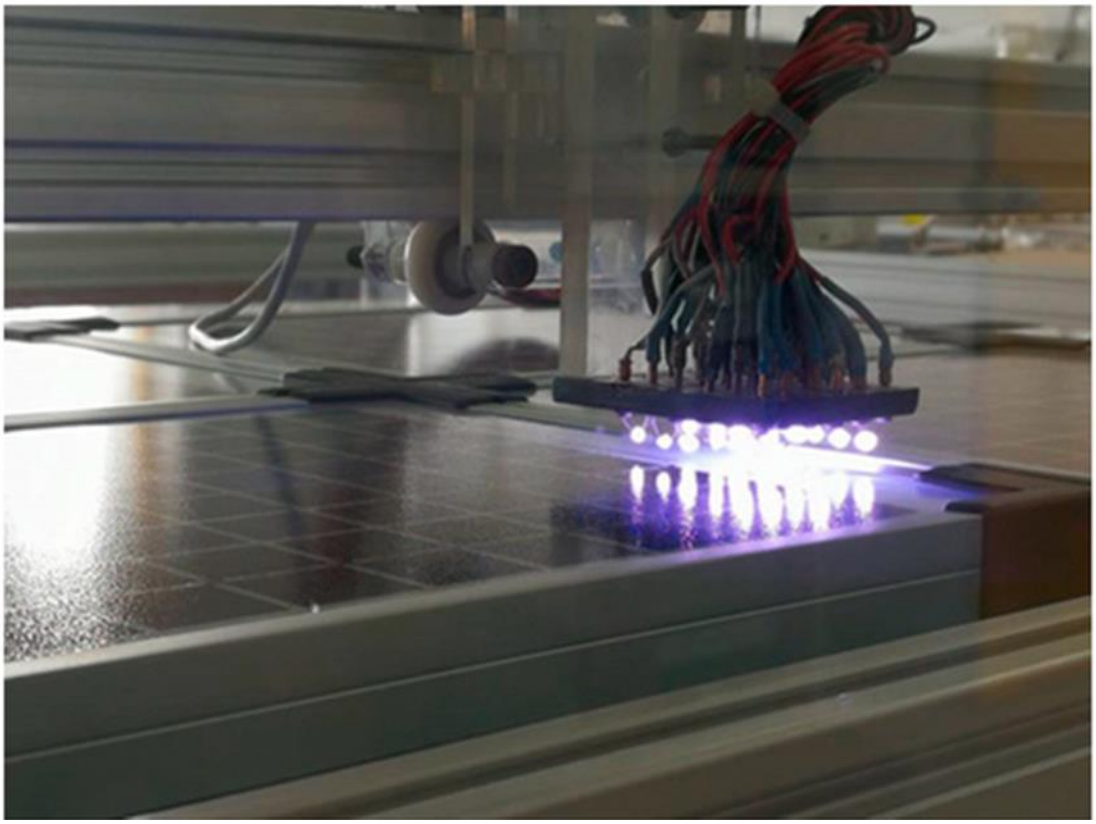
(**a**)



Supplementary Material

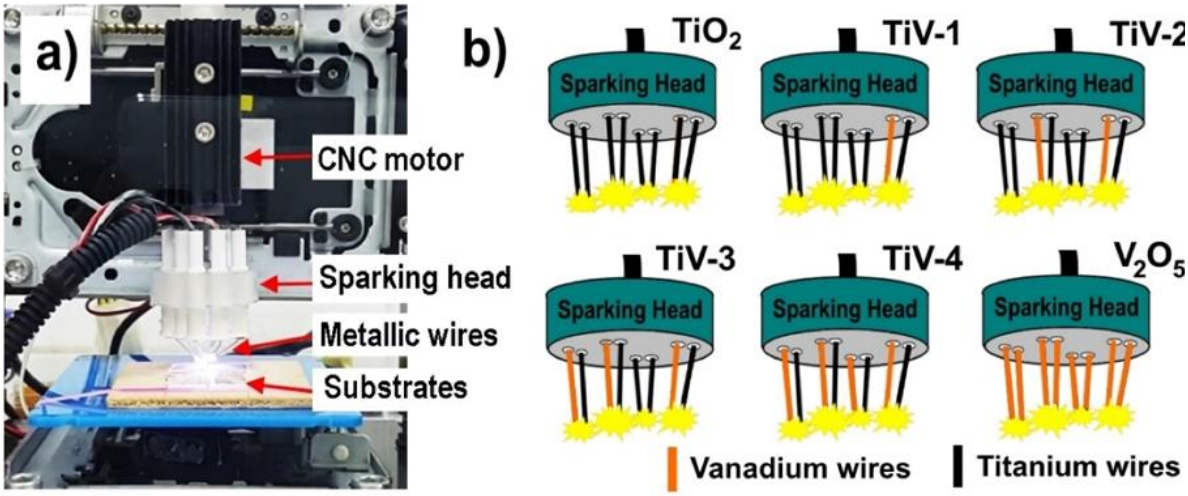
(**b**)

(**c**)



(**d**)

Supplementary Material



(e)

Inside of Sparking Machine, electronic components represented in this image, used in electronic circuit of sparking machine.