

nano4ENERGY



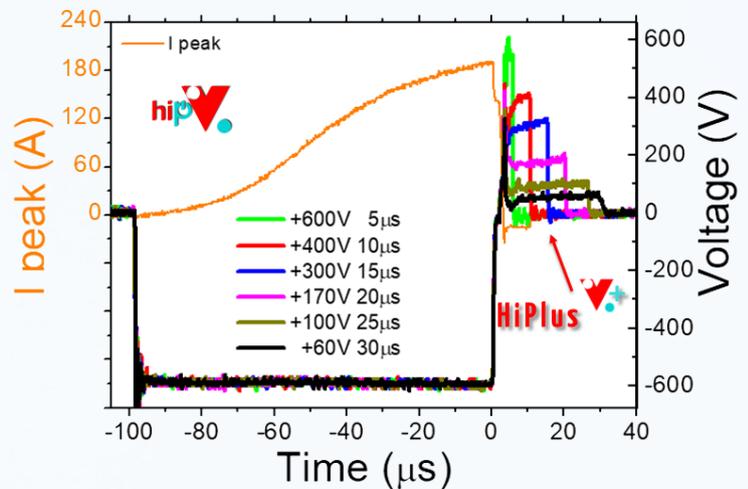
Get Ahead of your competition

Boosting performance with HiPIMS **HiPlus**

New level of controlability available in industrial size

The next step of HiPIMS with positive pulse is now available. Nano4Energy Have just completed the final tests of the new HiP-V power supply function with fully controllable positive pulse in industrially sized power ranges 10 and 20KW.

From the last few years of development in the sector we already know that the positive voltage reversal can have a great impact on the coating performance. We have already proven examples of DLC coatings, various metal nitrides and metal oxides. With this next step of fully controllable positive voltage reversal, both in time and amplitude results in that we can further optimize the effect of the positive pulse for each application.



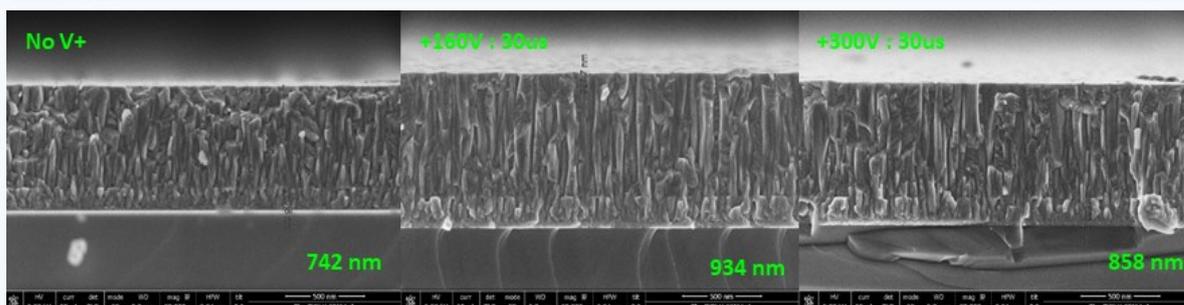
Optical coatings Deposition with HiPlus

Denser films with no evidence of composition changes when performing multiples passes. By adding a positive voltage overshoot all positive ions will be pushed in front of the target to move towards the substrate with an energy comparable to the positive target voltage. This allows us to "bias" insulating substrates and to increase the deposition rate or create considerably denser films maintaining the stoichiometry. In this way it is possible to optimize the optical properties of the coating.

Deposition of hard coatings using the HiPlus

DLC as well as Metal Nitrides' hardness and elastic modulus are enhanced when higher pulse voltages are applied. The increased presence of highly energetic ions is fundamental for the improvement of mechanical properties of the DLCs, which are denser and present a more ordered structure. The application of positive pulses is not only limited to carbon plasmas but can also offer great benefits for optimizing other coatings systems like hard carbides and nitrides.

Ultra smooth Hard coatings; Increasing deposition rate and/or densification the coating by HiPlus



Ti-based:
TiN, TiAlN, AlTiN, TiCN, TiSiN
Cr-Based:
CrN, CrAlN, AlTiCrN
Nanocomposites:
TiAl(Si,B)N
Nano.multilayers:
CrN/TiAl(Si,B)N,
TiN/TiAl(Si,B)N

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The industrial HiPIMS choice!



- FLEXIBLE
- RELIABLE
- MODULAR
- MULTI-FUNCTIONAL
- ROBUST



- HiPIMS-PS
- DC-PS (for magnetron sputtering, PECVD, Etch...)
- HiPIMS Synchronized Bias / DC-Bias
- HiPIMS AC Dual magnetron capability
- HiPlus Voltage reversal technology

The power of reliability!

www.hiPV.eu

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Product overview

	hiPV 1KW	hiPV 6KW	hiPV 10KW	hiPV 20KW
Power	1KW	6KW	10KW	20KW
Peak Power	0,1MW	0,5MW	1,2MW	2,4MW
Voltage	1200V	1200V	1200V	1200V
Current max. HiPIMS	100A	500A 1000A opt.	1000A 2000A opt.	1000A 2000A opt.
Current DC max.	3A	18A	25A	50A
Frequency max.	40KHz	2KHz P max @1KHz	2KHz P max @1KHz	2KHz P max @1KHz
Time ON	5-1000µs	5-1000µs	5-1000µs	5-1000µs
ARC Control	< 3µs	< 3µs	< 3µs	< 3µs
Cooling	Air	Water & Air		

Customized HiPIMS Power Packs up to 80KW available