THIN FILMS - R&D MATERIAL SOLUTIONS

PPD wide combination of usable substrates and thin film to be deposited:
innovative solutions never implemented before.

COATING FEATURE

Electrical conduction
- High melting point conductors
- Transparent Conductive Oxide

Energy harvesting and storing
- High- K materials
- Active layer for PV
- Solid state electrolyte

Semiconductor Doping
- P-type
- N-type

Barrier for H_2O and/or O_2

Hardening and low friction

Bio-mimetic, bio-compatible

Shimmering, burnishing

INDUSTRIAL SECTORS AND PRODUCTS

Electronics:
HD Memories, Batteries, Gas Sensing, Display, Smart Screen, Total Transparent Devices, MOSFET, LED, inverse OLED, etc.

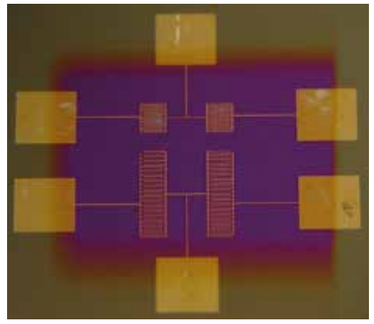
Mechanics:
valves, injectors, screws, pumps, working tools: blades, cutters, milling and boring machines, etc.

Biomedical:
prosthesis, implants, stents, etc.

Jewelry, fashion, design, etc.

BTOB SERVICE SURFACES TREATMENTS

PPD versatility and
high deposition rate allow production
of specific set of samples realized
according to customer requirements
for “pilot” applications.



Organic Spintronics

PPD Gun Series
PPD Systems

ORGANIC SPINTRONICS SRL

Low Temperature Depositions

High control on thin film composition

High deposition rates

Up to 200 Hz working frequency

R&D Materials Solutions

BtoB Service Surface Treatments

www.organic-spintronics.com
info@organic-spintronics.com
Via P. Gobetti, 101 - 40129 Bologna
tel +39 (0)51 6398728/4154927 - fax +39 (0)51 639 868

PPD EQUIPMENT - GUN SERIES

For Science and Research

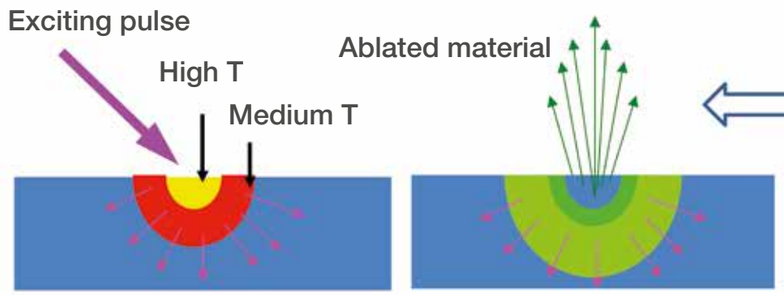
GEN IV
Characteristics:
Work Frequency: up to 100 Hz
Work Run Time: 8 hours
Surface diameter substrate: 10 cm

For Industrial applications

GEN IV - PRO
Characteristics:
Work Frequency: up to 200 Hz
Work Run Time: 80 hours
Surface diameter substrate: 15 cm

PPD WORKING PRINCIPLES

DENSE, HOT AND FAST PLASMA PLUME



LOW T PROCESS **HEAT FLOW**

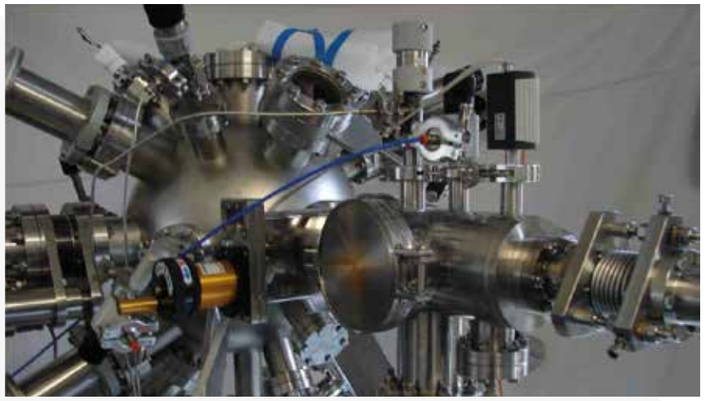
Ablation process performed on target surface, ejects a fast, dense and fully ionized plasma forming a film on the substrate.

Thin film depositions performed by PPD

- CdS
- CdTe
- ZnO
- WC
- HfO_2
- BST
- GaN
- Cu
- Al
- W
- Ti
- $ZnO:Al_2O_3$
- In_2O_3
- In_2O_3:Mo
- LiPON
- ZrO_2
- SiO_2
- Al_2O_3
- TiO_2
- DLC
- Stainless steel
- Polyethylene
- Teflon

PPD SYSTEMS FOR RESEARCH

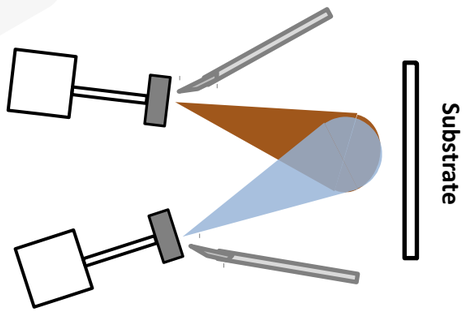
PPD Twin Spark-Mixing configuration for co-depositions or unconventional doping



2 – 3 “ PPD deposition system
350 mm diam. UHV chamber
Load – lock (LL)
RF cleaning in LL
In-situ laser thickness monitor and control
5 % thickness homogeneity at 3 sigma

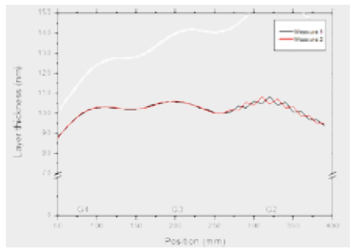
Two PPD sources

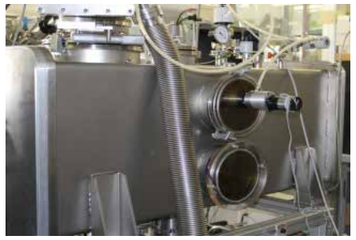
- Complex structures (crystalline or glassy) thin films easily achievable by complete transfer of target material
- Unconventional doping (such as magnetic doping, p-doping, etc) by gas
- Simultaneous or individual control of plumes timing, intensity, temperature
- Fine control of material ablated from each target
- Co-depositions and “out-of-equilibrium” stoichiometry films achievable by mixing plasma plumes from different targets



PPD SYSTEM FOR INDUSTRIAL PRODUCTION

Wide area PPD (250 mm wide) c.w. deposition system





The PPD technology allows:

- Extremely high deposition rate
- Safe and sustainable fabrication process
- A wide area Implementation deposition system
- C.W. and Roll-to-Roll deposition capability on plastics or “heat-degradating” materials
- An easy integration of PPD GUNs module in thin film industrial production line
- High film thickness homogeneity