



Future Gallium Nitride Sputter Deposition Development at PVD Products

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At PVD Products we are continuing to advance our GaN sputtering technology. During our webinar, sputtering from a liquid Gallium magnetron was described. PVD Products has recently designed its third-generation *solid* Gallium magnetron (photo). This gun builds on our experience with Gallium magnetrons as well as our standard magnetrons. We are engaging with our partner at Linköping University to apply this gun for epitaxial GaN film growth. Here are main features of this gun:

- 3" target diameter, allowing deposition onto larger area substrates (for scaling)
- UHV-compatible
- Gallium is loaded into a cup in magnetron head and solidified (near room temperature)
- Gun features cooling with low-temperature fluids in specialized chillers, for operation at low temperatures.
- The Gallium can thus be kept solid even under plasma bombardment during the sputtering process.
- The circumferential magnets and the center pole-piece can be changed, to allow experimentation with different magnetic field configurations.
- The bottom flange is a Conflat at ground potential and is mounted on a re-entrant adapter in a Z-stage. This allows for varying the target-to-substrate distance.

Our work with the Linköping University group will determine operating parameters and capabilities of this gun for reactive deposition of GaN films and nanostructures. We will provide updates on the results as they become available.



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