

Status & objectives of pinched mode studies

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ARIES Meeting

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PPPL

Mainline ballistic neutralized transport mode

- Robust physics and technology
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Accomplishment (FY02)

- Robust Point Design nearing completion
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Plan (FY03)

- Finalizing Robust Point Design (**completion by end of October**)
- Optimization and mapping of operation window

Assisted Pinched mode

Advantages

- Relaxation of driver requirements (**hitting~1cm radius spot**)
- Shielding (**small port hole, gas protection**)

Accomplishment - Point Design Completed

- Hybrid target
- 88% of beam delivered to target (IPROP simulation)
- Channel formation - experimental confirmation (**3+1 Ph.D thesis**)
- System point design (magnet & chamber layout, adequate shielding)

Plan for FY03:

complete mapping of pressure window

Long-term need:

Hybrid target physics

Very high current (~MA) beam propagation

Self-pinched mode

Advantages:

- (same as APM)
- Simplicity (No discharge)

Accomplishments (to FY02)

- Feasibility of long distance propagation (LSP Simulation)
- Pressure window

Plan for FY03

- Complete LSP simulations
- Scaling
- System concept

Long Term need

- Experimental demonstration of pinched propagation