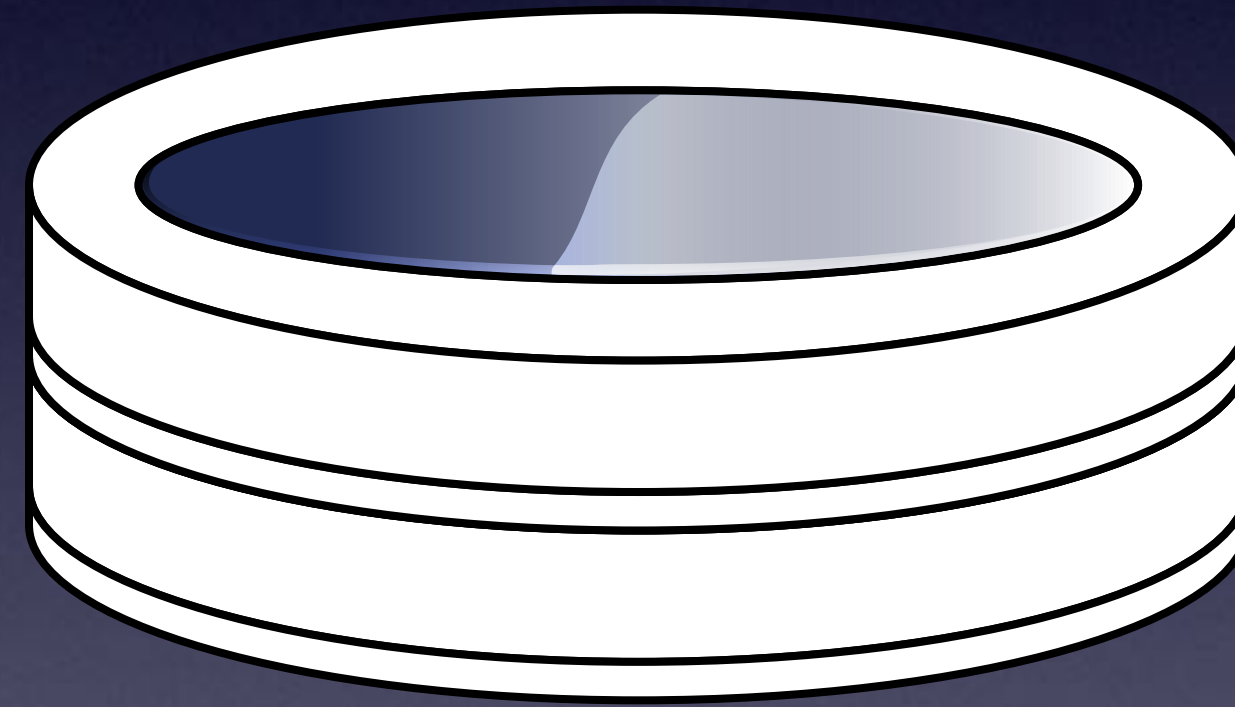


Position resolved photon counting with microchannel plate (MPC)
based photomultiplier

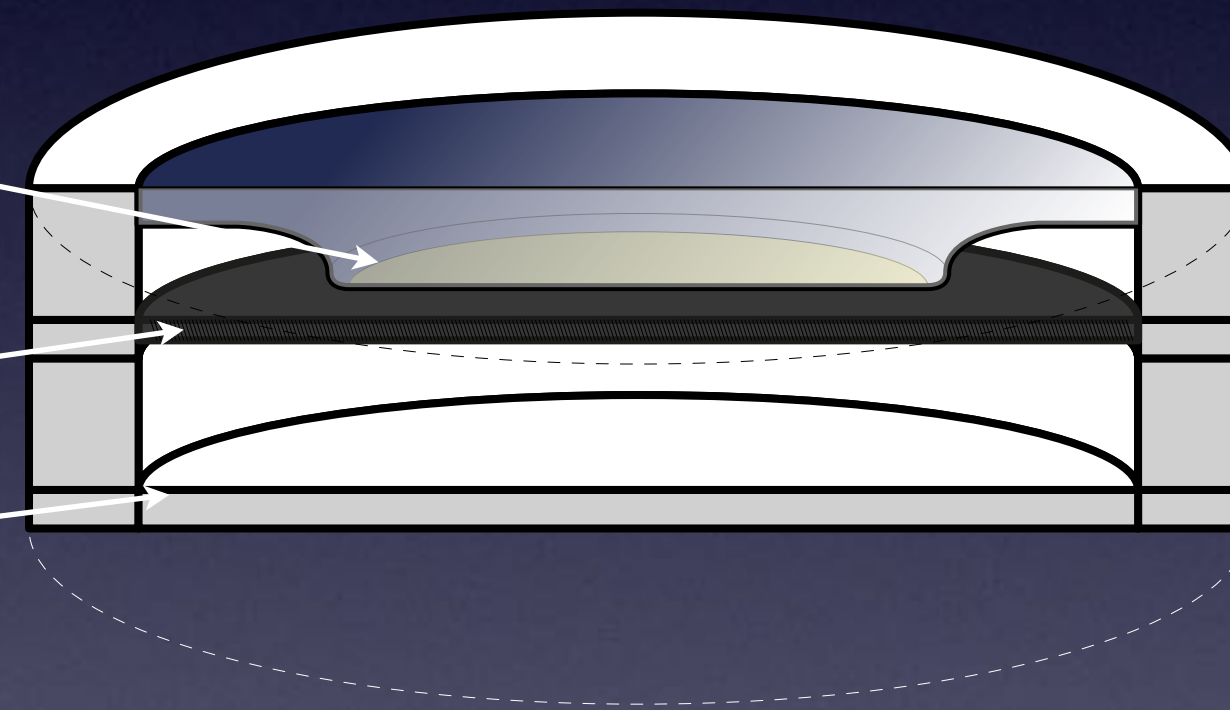
Position resolved photon counting with microchannel plate (MPC) based photomultiplier



Position resolved photon counting with microchannel plate (MPC) based photomultiplier

Three key elements:

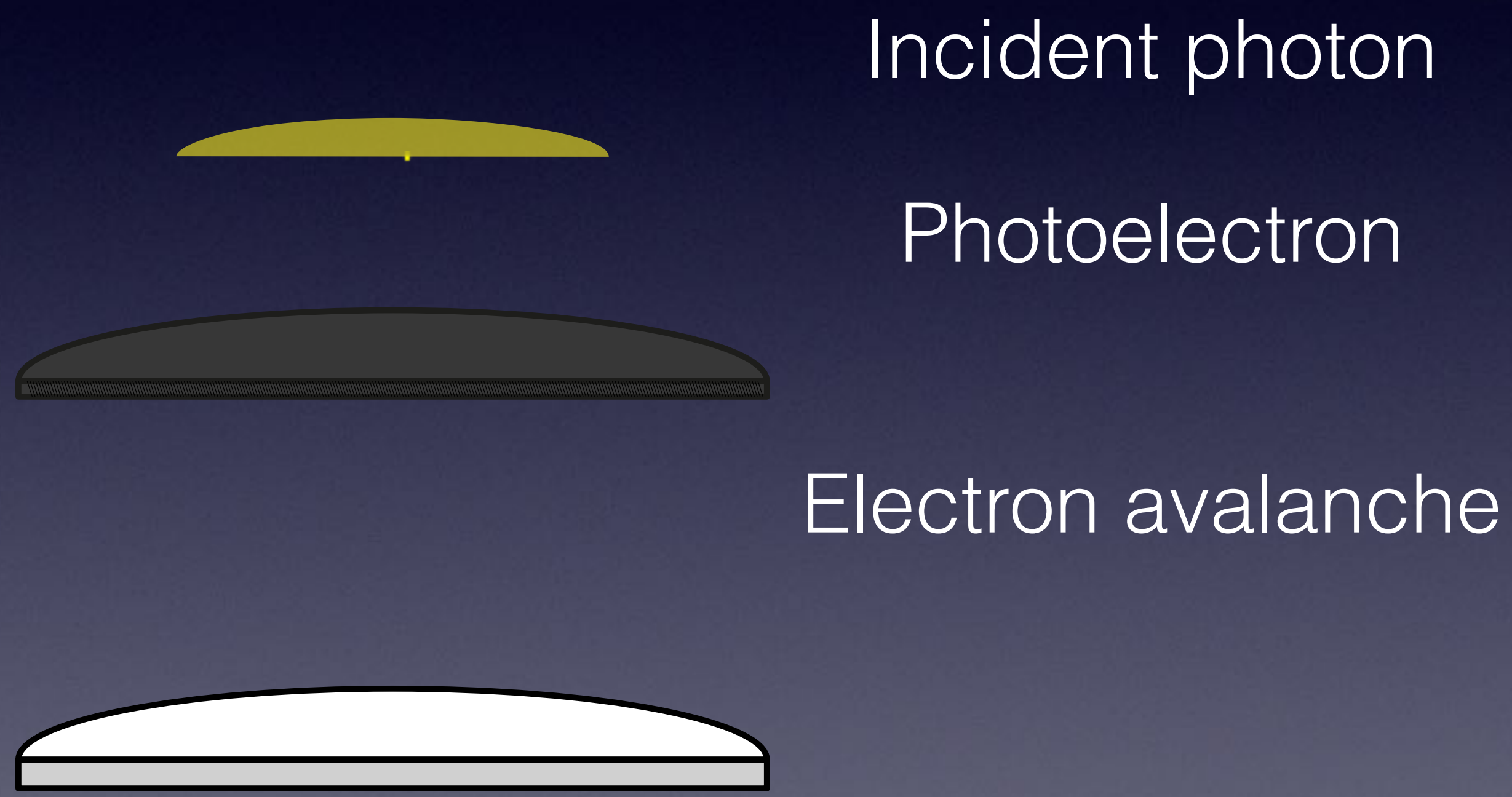
- Photocathode
- Microchannel plate
- Anode



Position resolved photon counting with microchannel plate (MPC) based photomultiplier

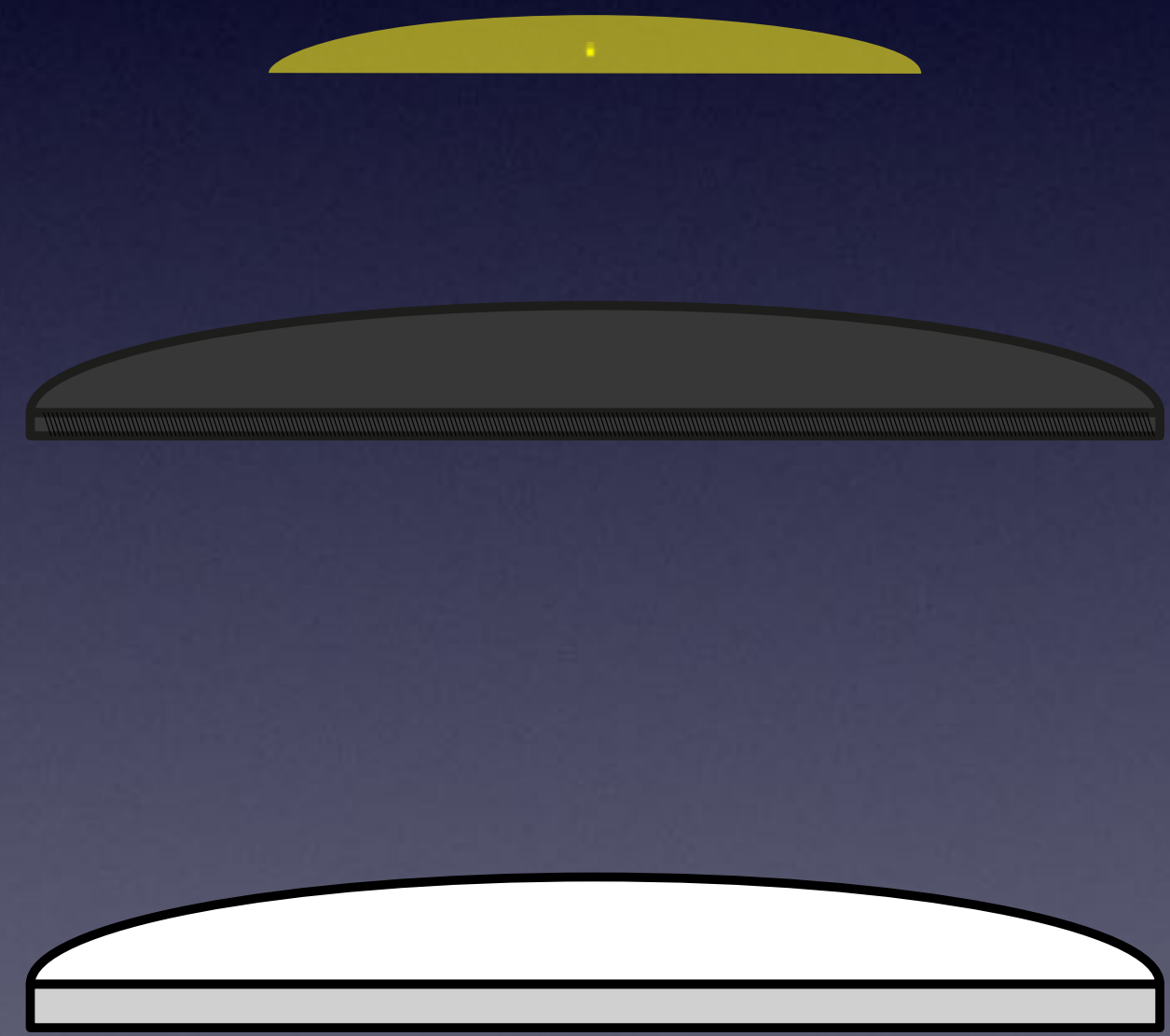
Three key elements:

- Photocathode
- Microchannel plate
- Anode



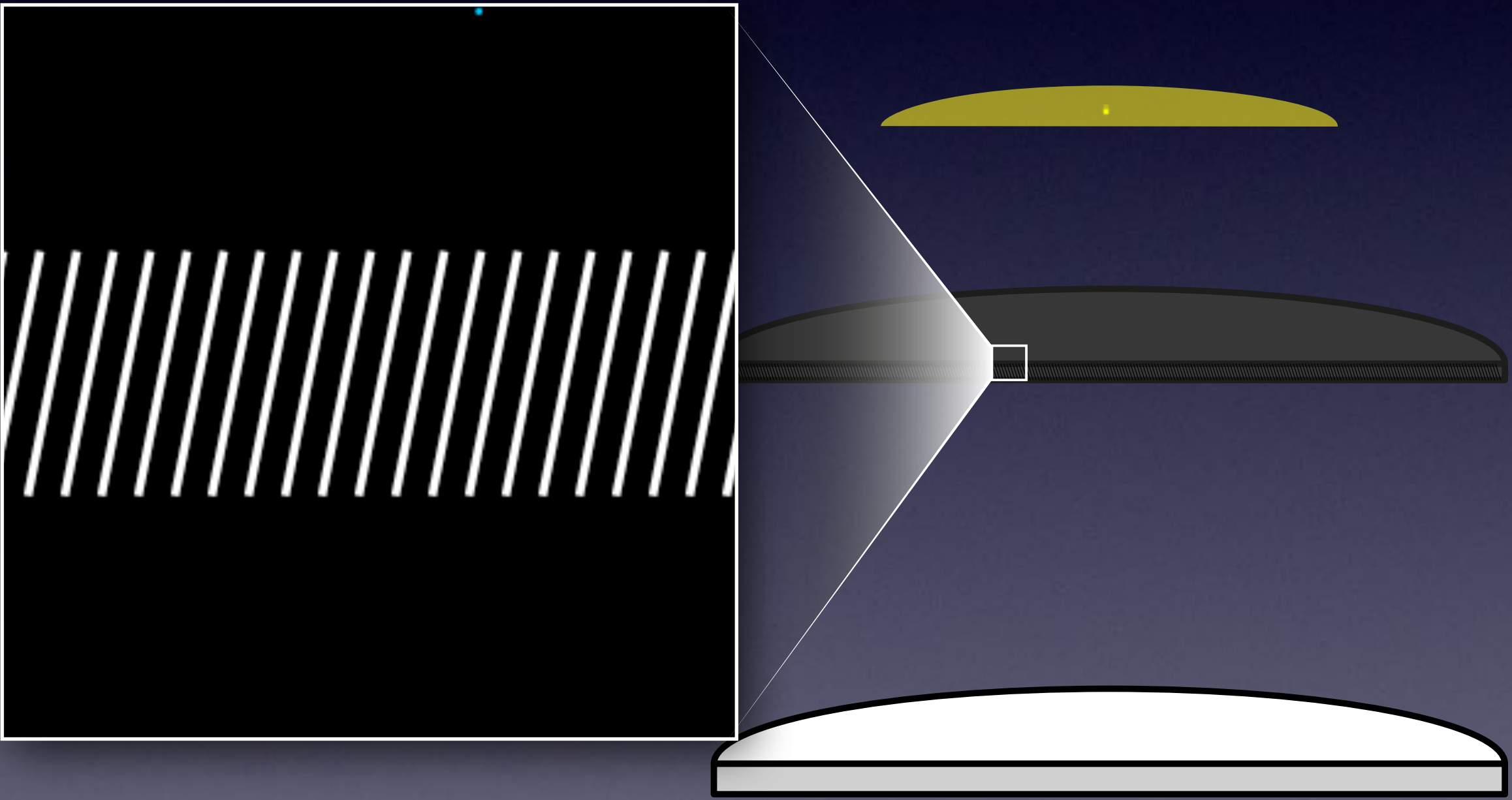
MCP operational principle

Microchannel plate



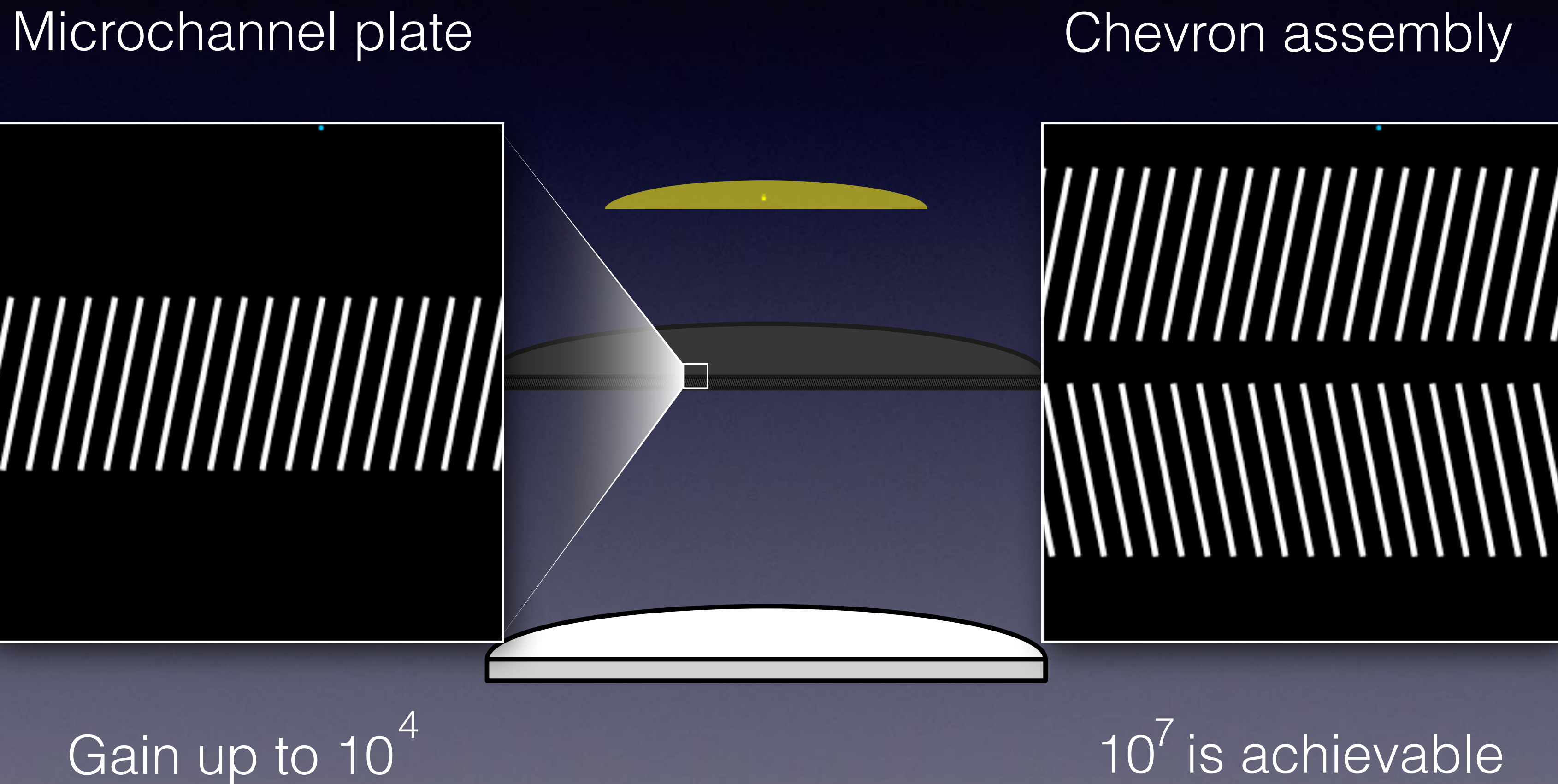
MCP operational principle

Microchannel plate



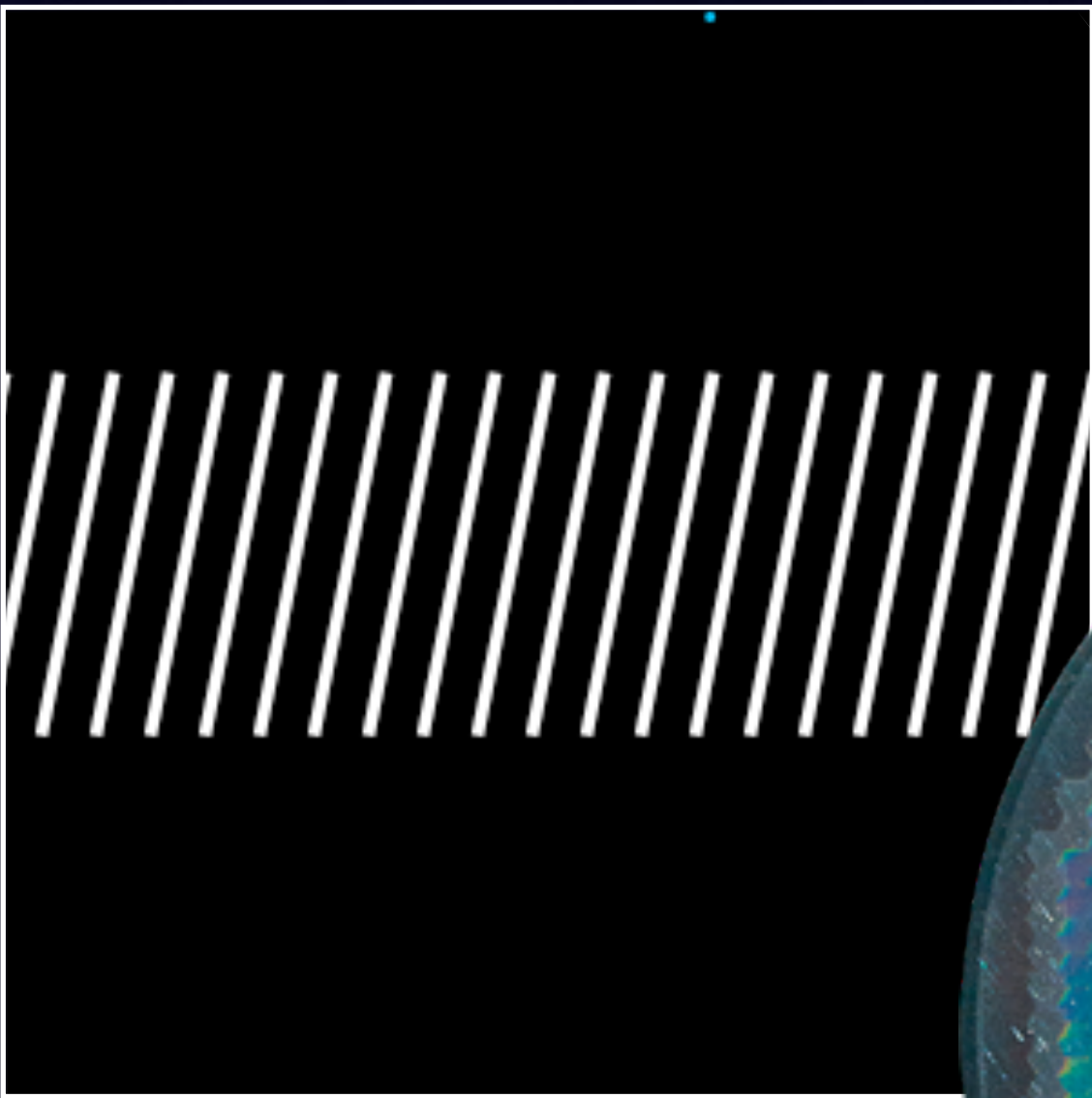
Gain up to 10^4

MCP operational principle



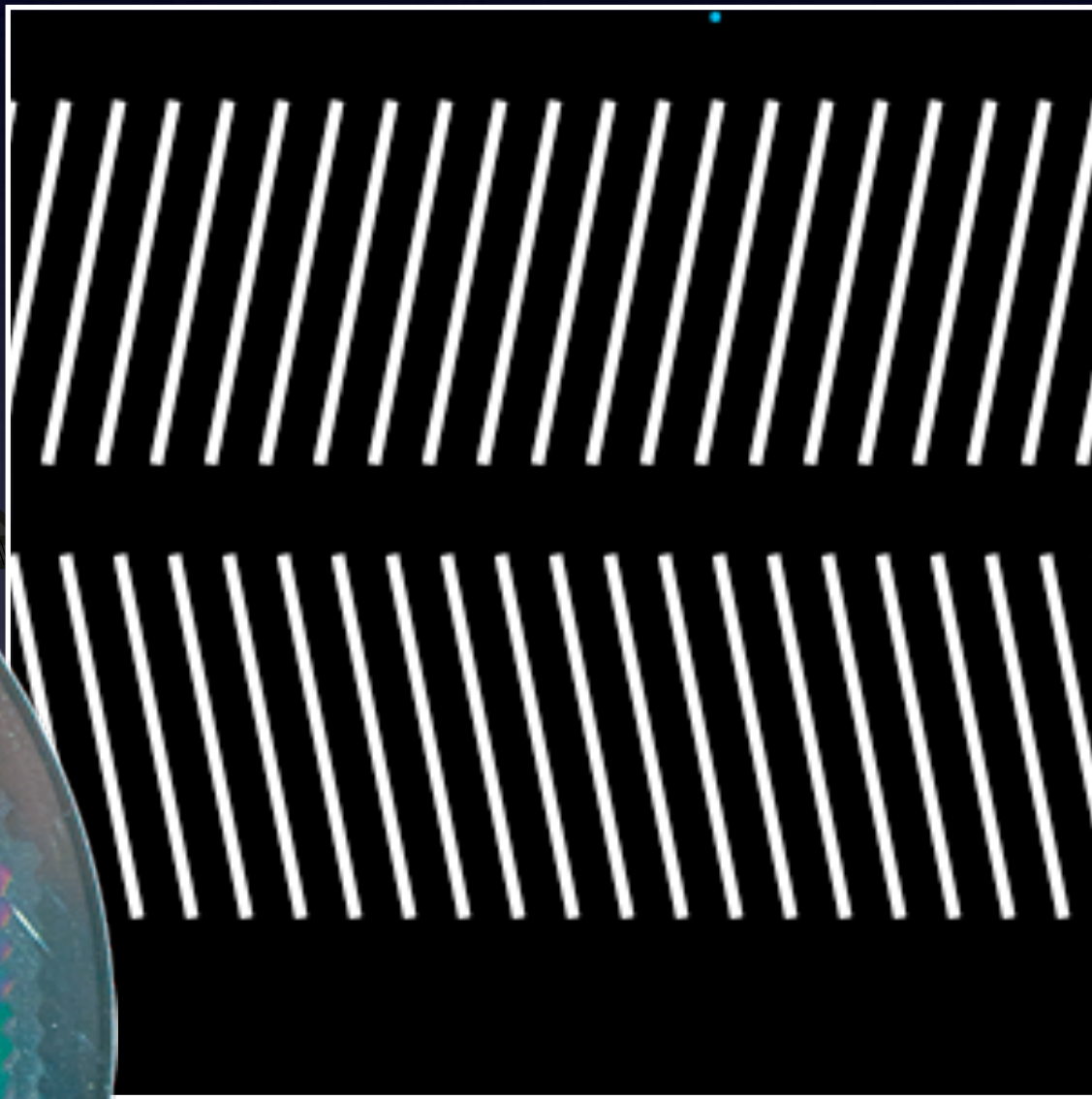
MCP operational principle

Microchannel plate

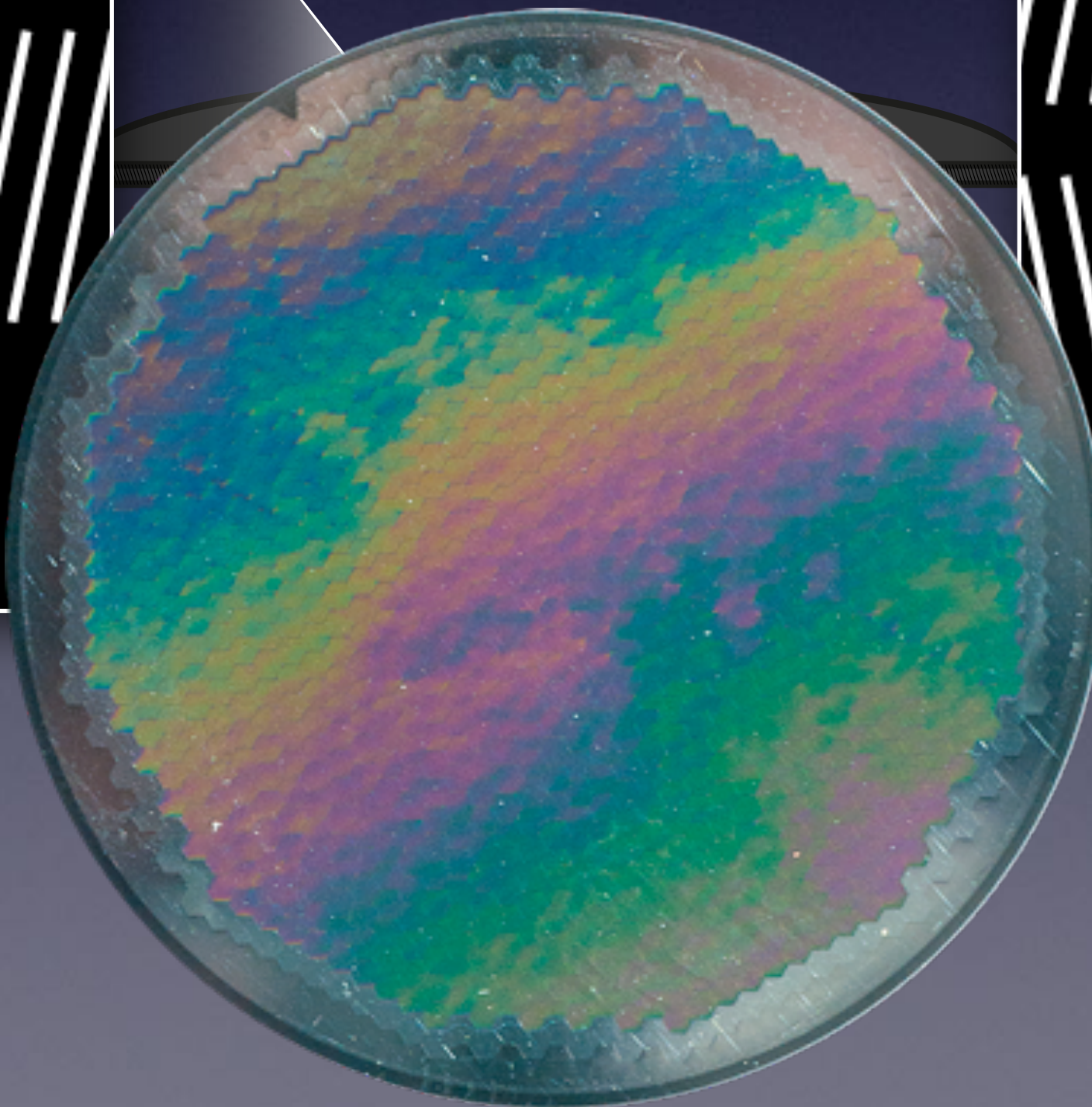


Gain up to 10^4

Chevron assembly



10^7 is achievable

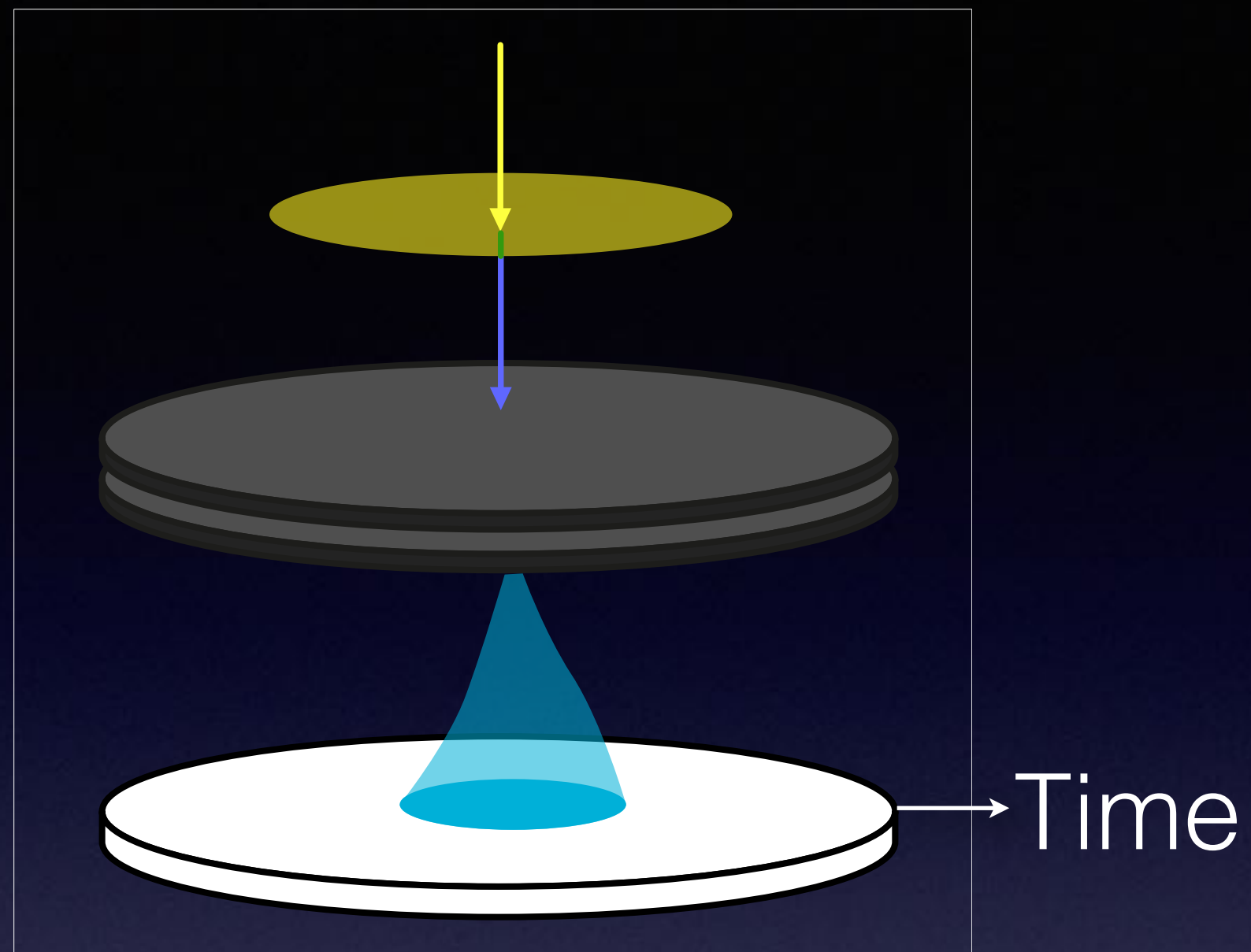


Time and position registration

MCP signal:

- Avalanche development time is less than 200 ps
- Time jitter is less than 100 ps

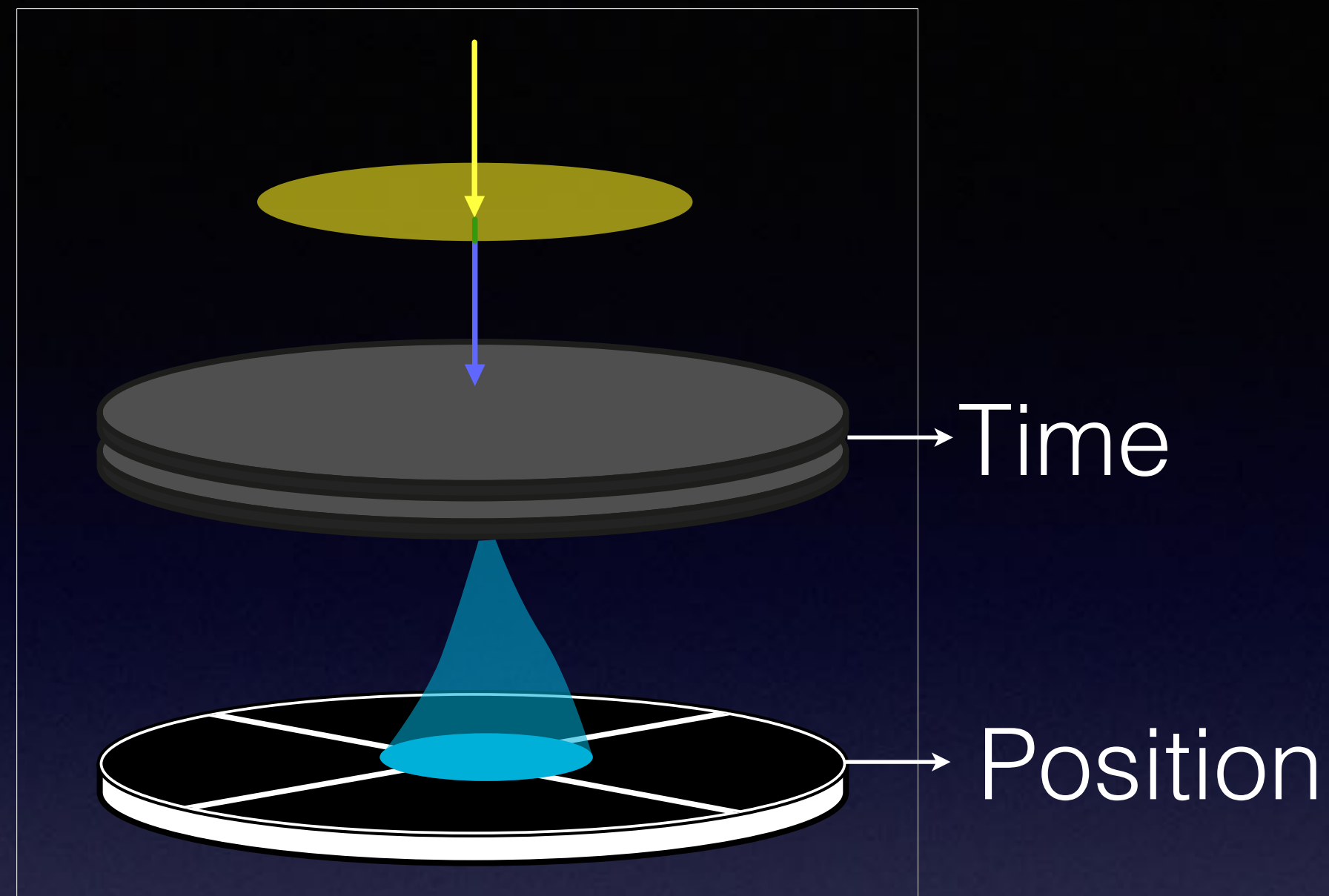
Time and position registration



MCP signal:

- Avalanche development time is less than 200 ps
- Time jitter is less than 100 ps

Time and position registration

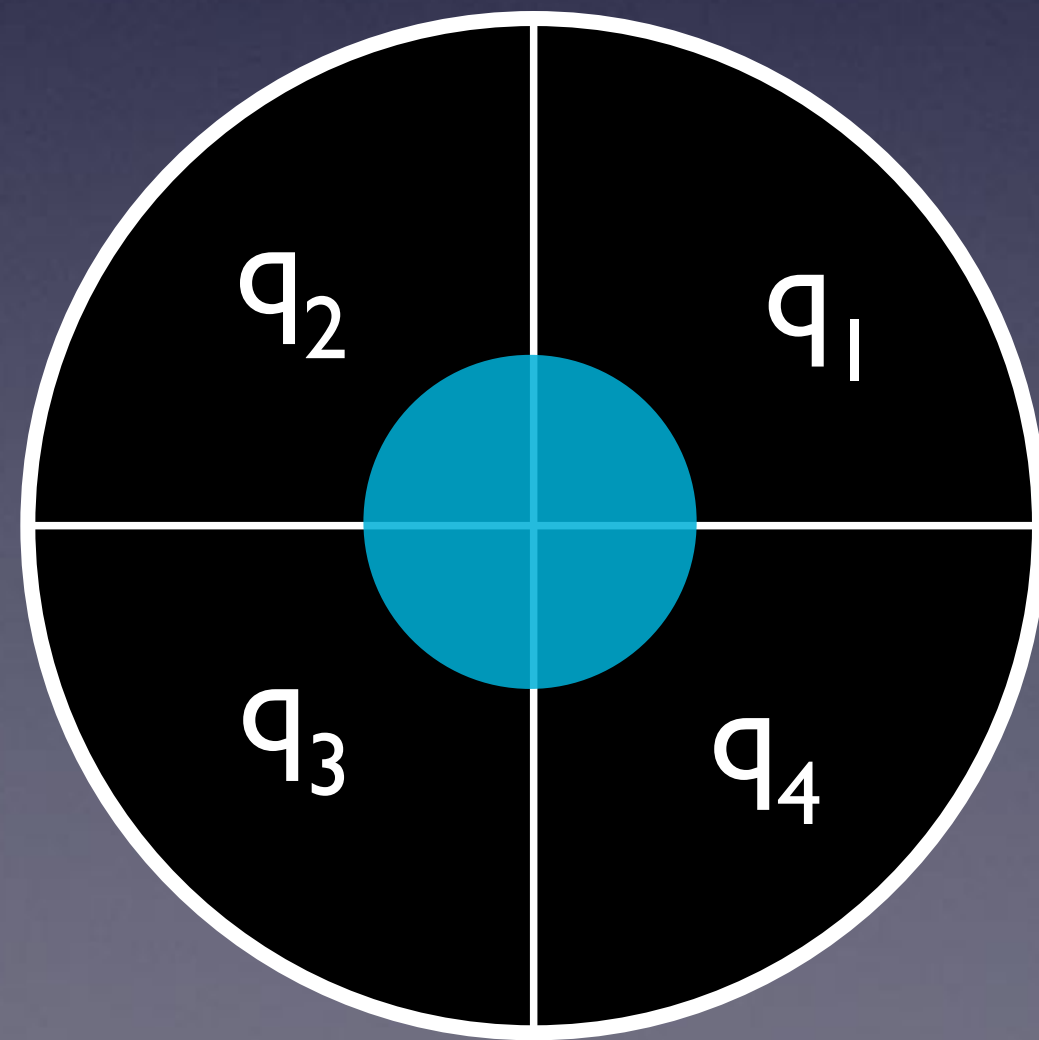


MCP signal:

- Avalanche development time is less than 200 ps
- Time jitter is less than 100 ps

Quadrant anode:

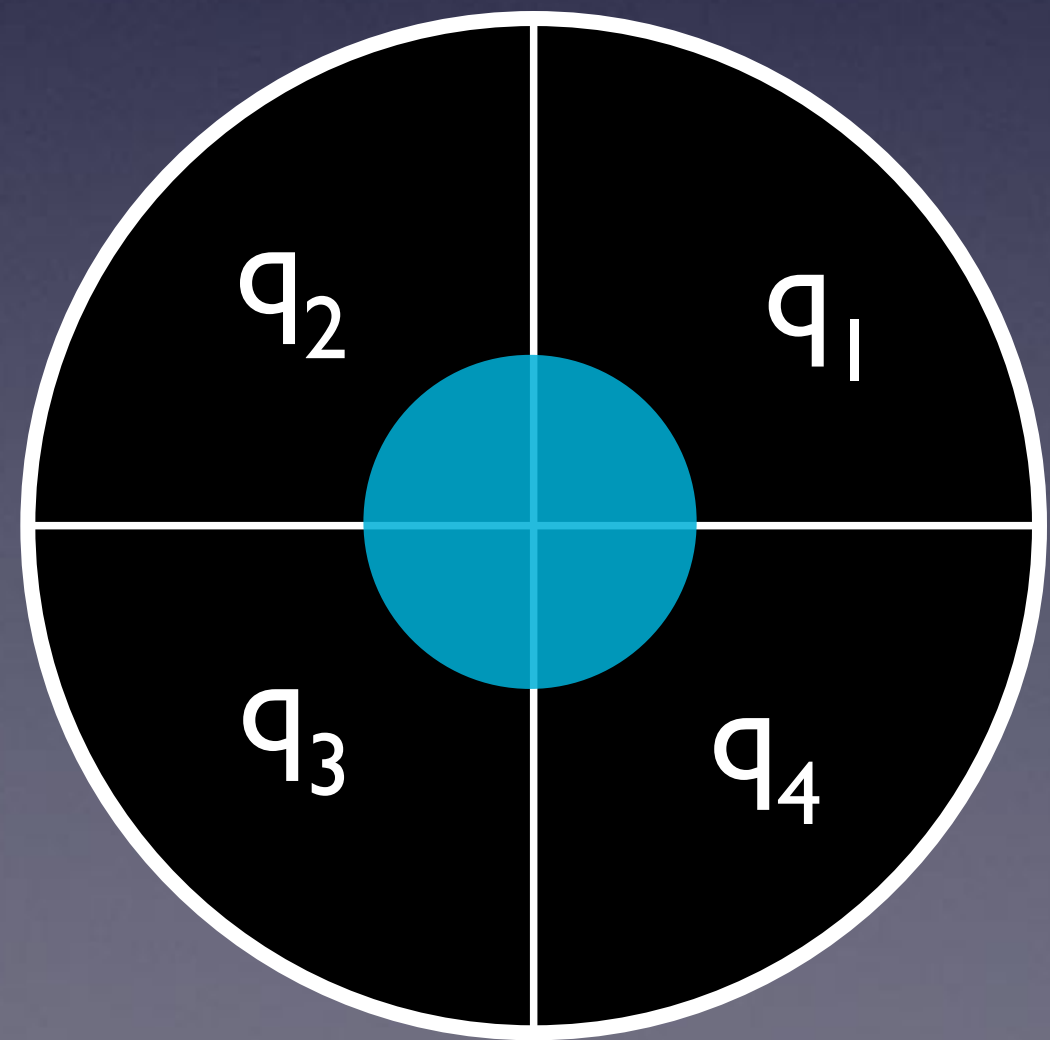
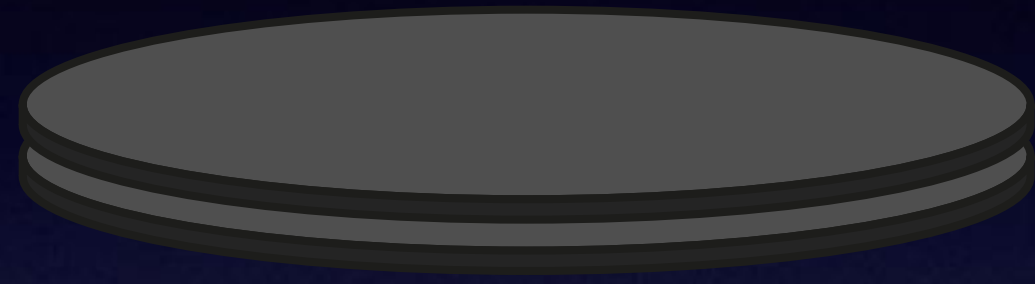
- Simple
- Easy to calculate position:



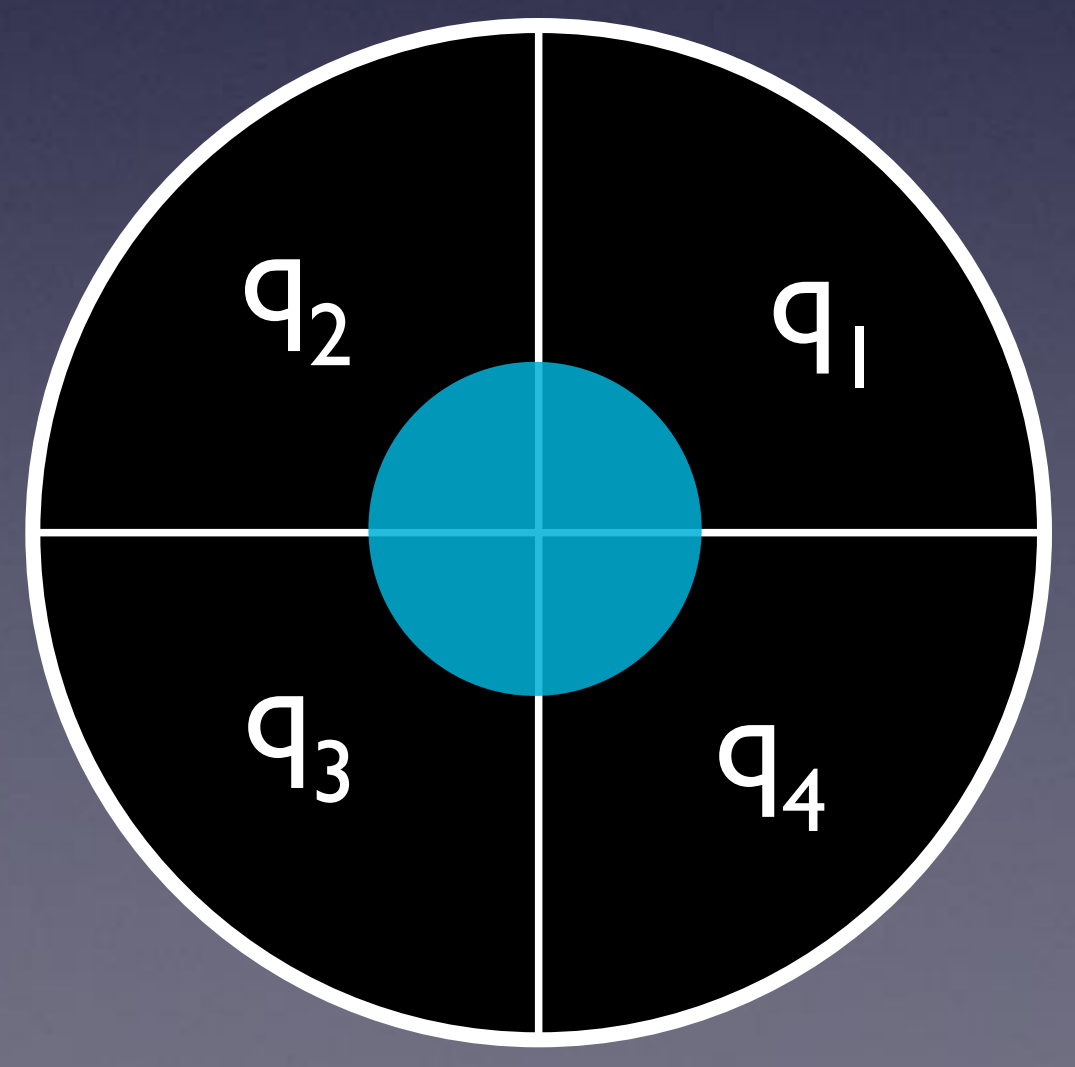
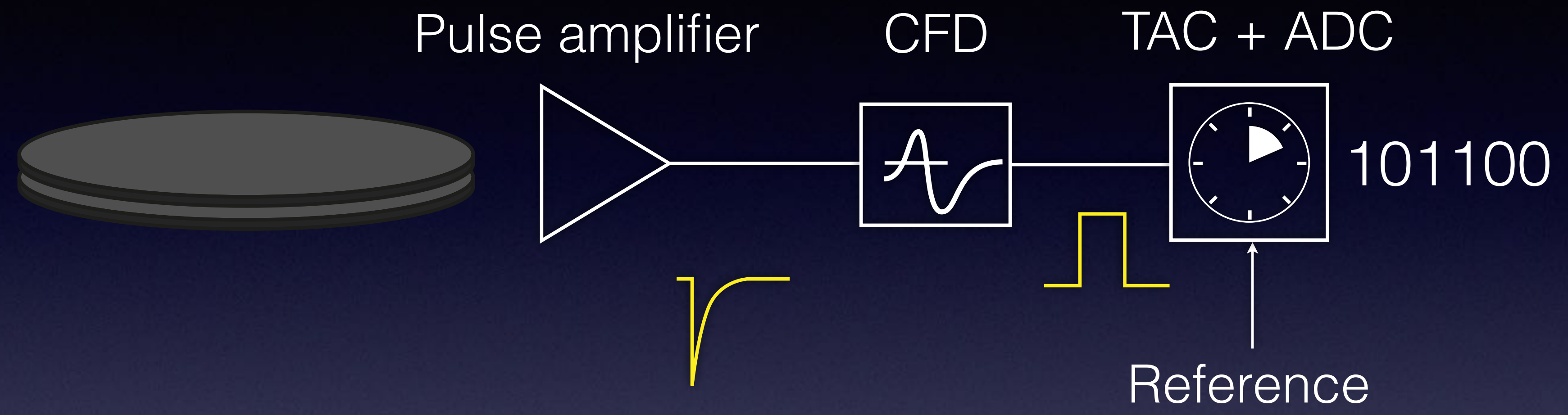
$$x = \frac{q_1 + q_4 - q_3 - q_2}{q_\Sigma}$$

$$y = \frac{q_1 + q_2 - q_3 - q_4}{q_\Sigma}$$

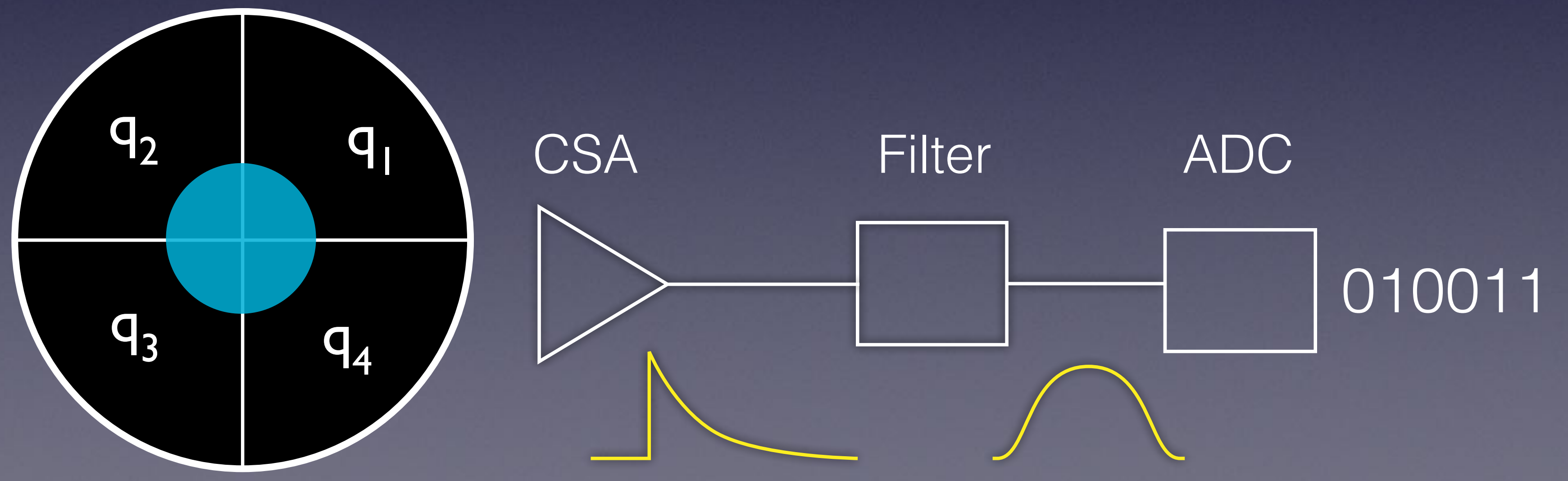
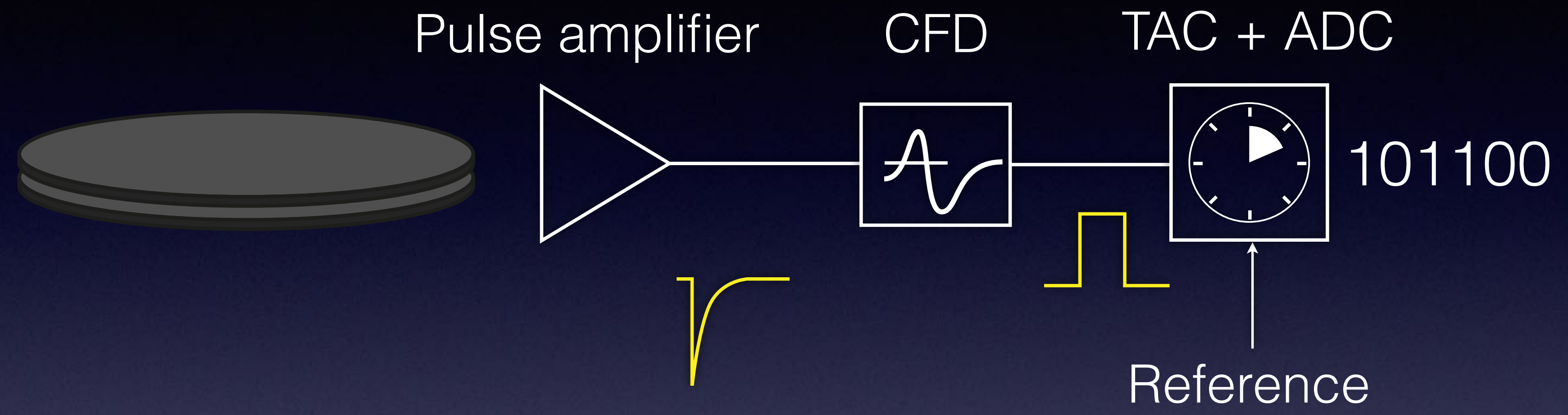
Time and positional information are acquired simultaneously



Time and positional information are acquired simultaneously



Time and positional information are acquired simultaneously



Time and positional information are acquired simultaneously

