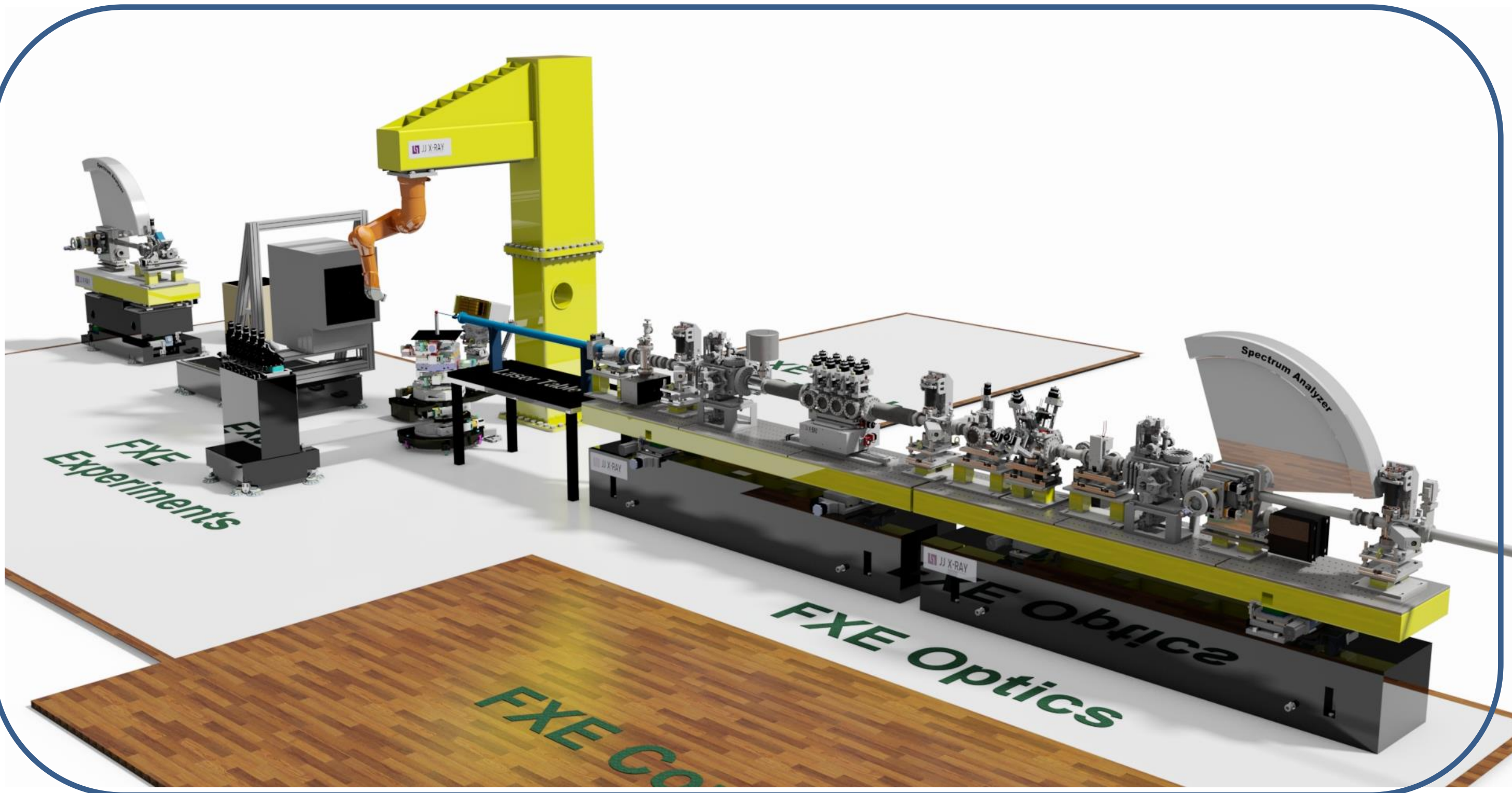




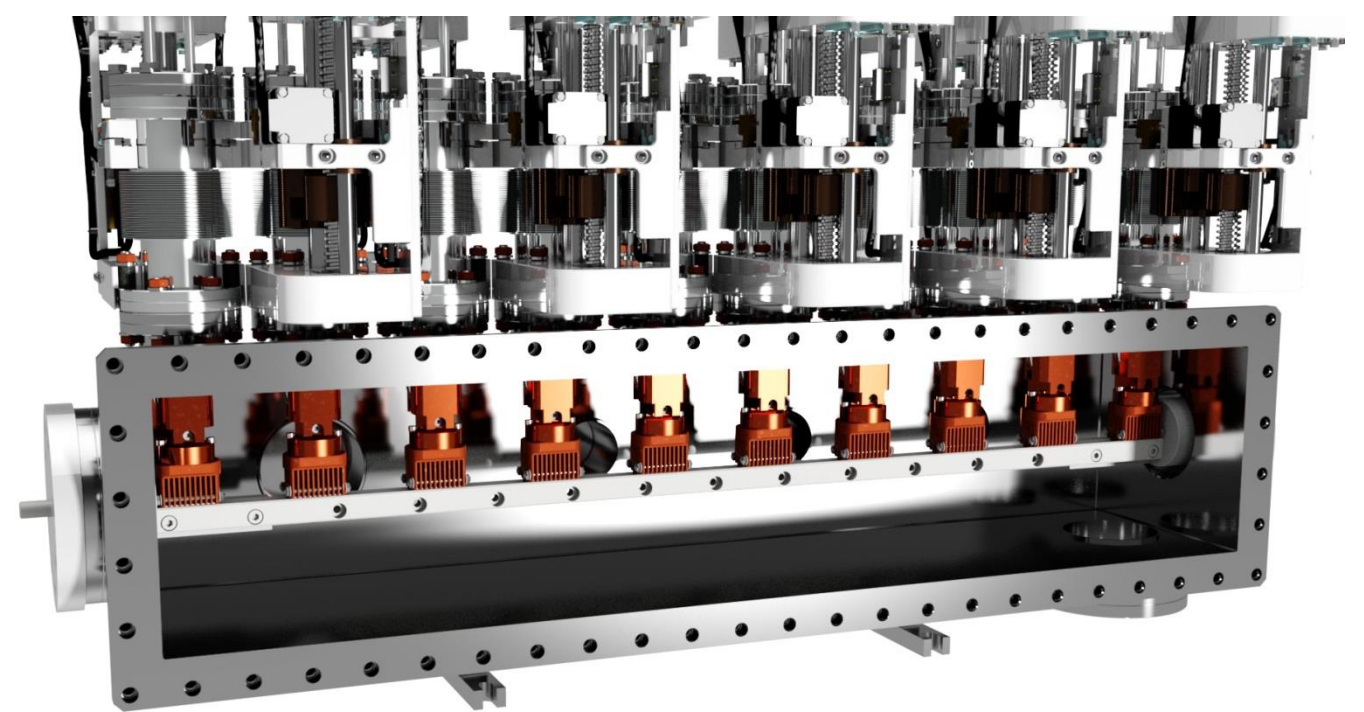
# JJ X-RAY

Danish Science Design

## The FXE instrument at the European XFEL

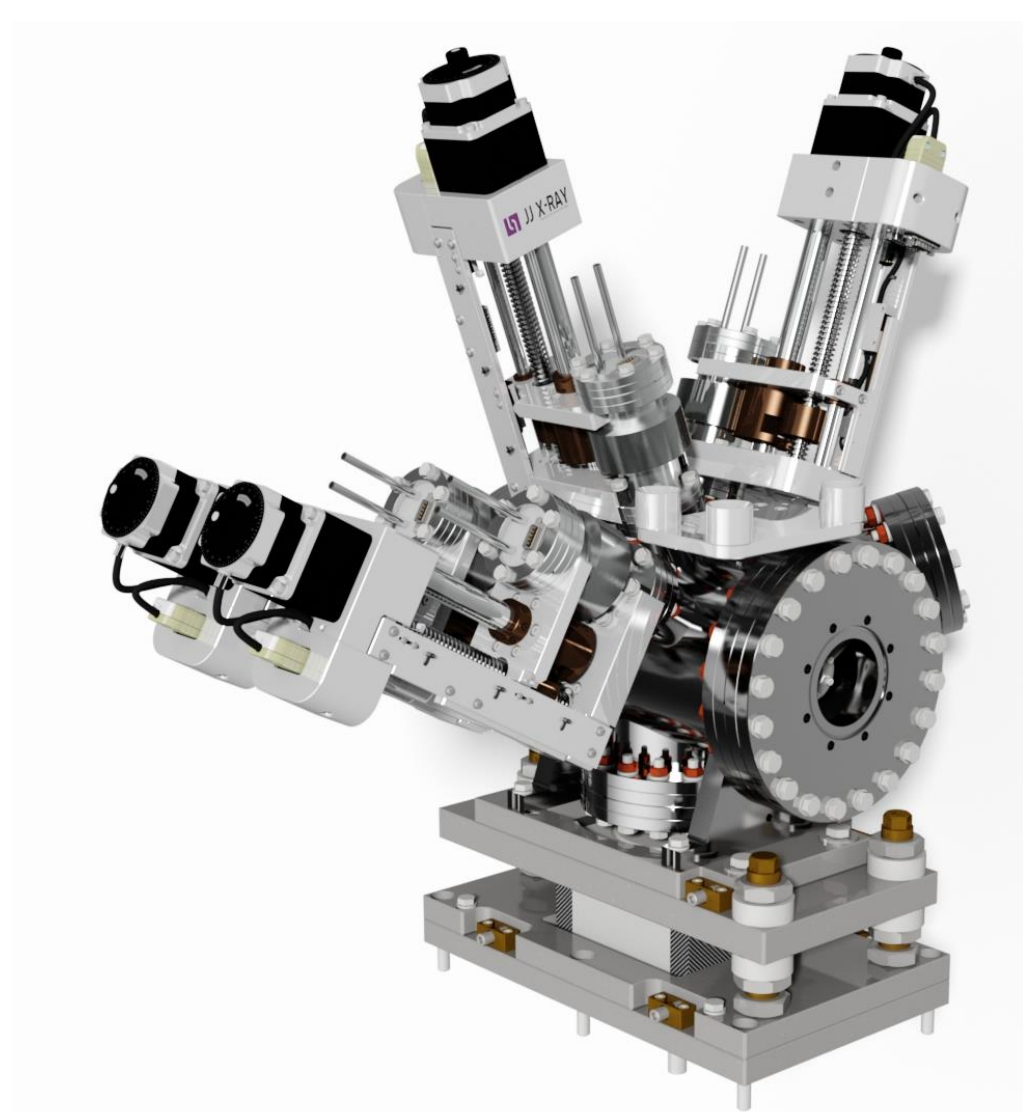


### Beryllium CRL's



- 10 actuators holding up to 16 lenses each
- Water cooled
- Positioned in X-Y plane with 1  $\mu\text{m}$  accuracy
- 5 axis of external positioning

### Solid Attenuator

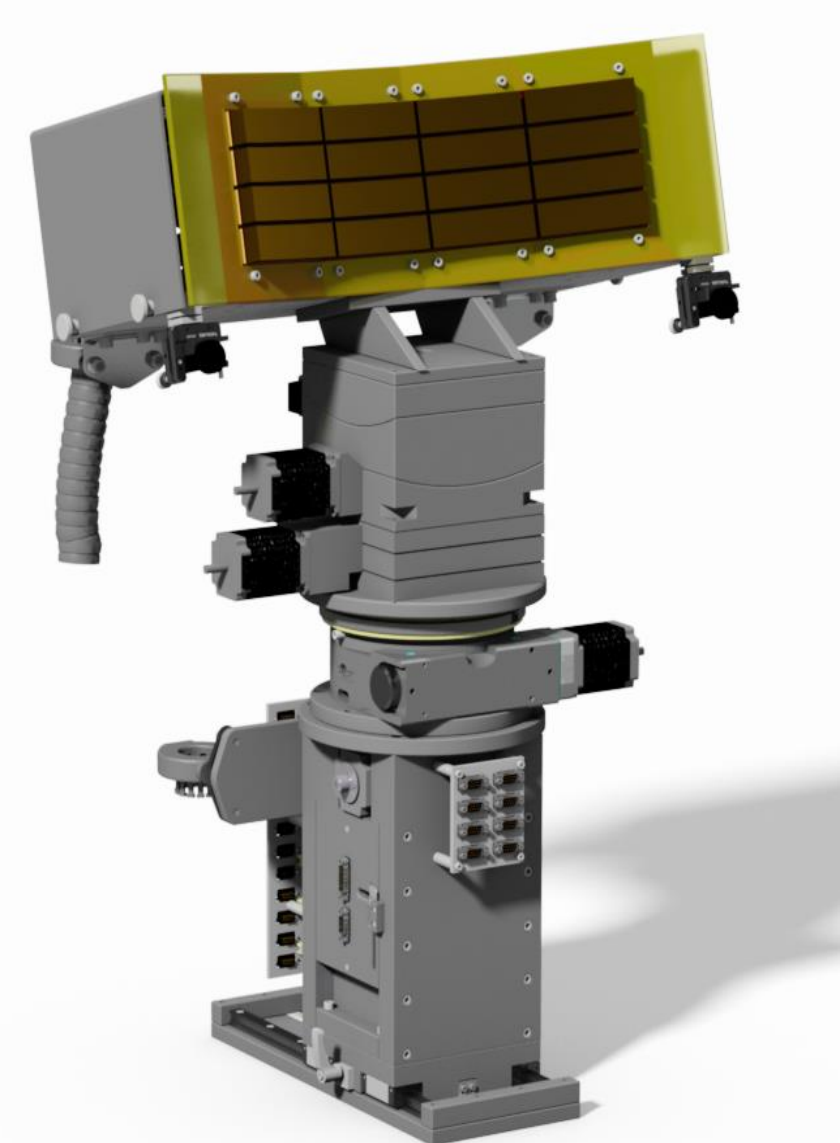


Collaboration between



JJ X-RAY  
Danish Science Design

### Von Hamos Spectrometer



- 16 curved Si crystals
- Individually positioned with  $<15 \mu\text{rad}$  accuracy
- 3 actuators per crystal
- 48 motors in total