

WP4-Task5: Integration

Markus Aicheler

Helsinki Institute of Physics

20.09.2018

Recap: What we would like to do for XLS

- Help **establishing alignment and stability requirements** for each component in the linac
- Develop **design for support structure** of components for the entire length of the accelerator
- Use lessons learned from CLIC module for **high quality and affordable** realization of **support design**
- Use **synergy in prototyping** for **CLIC module** to improve XLS support design if necessary

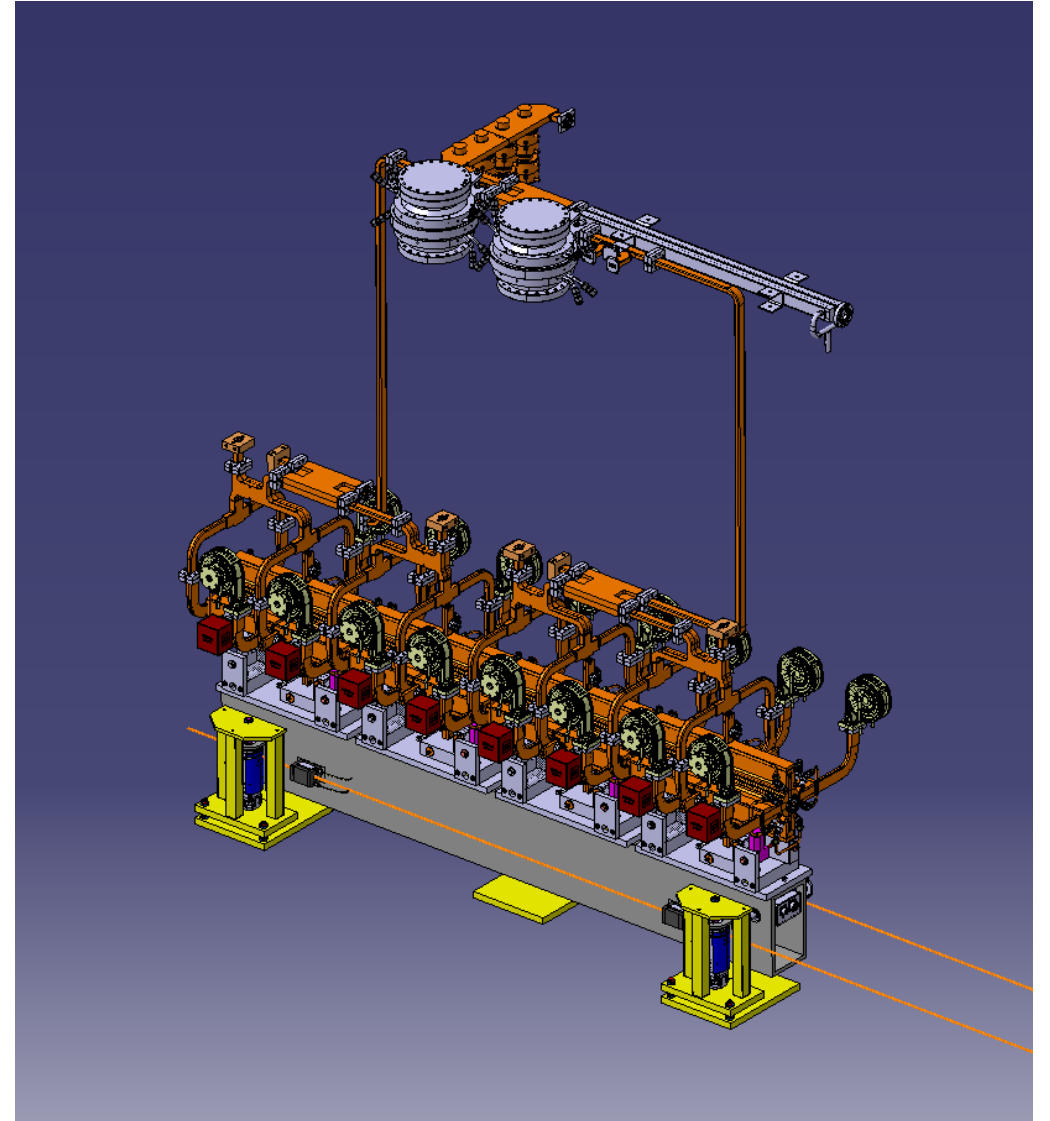
Task 5: Integration

Description:

- Providing a framework for condensing/bringing together mechanical designs and related systems designs
- Translating stability requirements of components in concrete mechanical designs for supports
- Ensuring proper interfacing with adjacent injector and undulator
- Establish lists of components for costing exercise
- Issue space allocations?

K-module CLIC380

- New girder and actuators
- Adjustable support for every SAS
- Spiral loads
- New compact loads for RF network



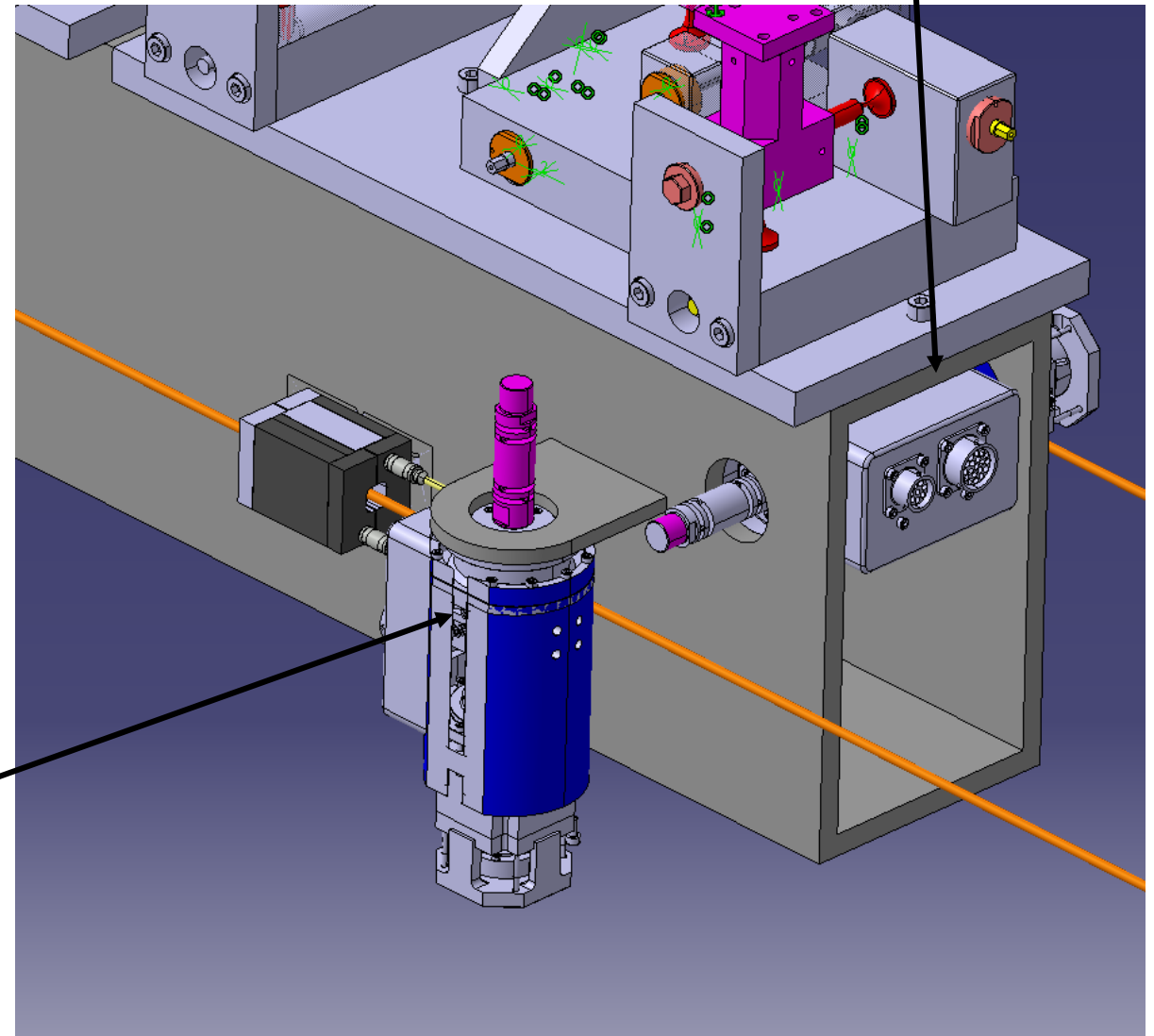
Courtesy Y. Cuvet

Integrated movers

- Movers are integrated on the girder
- Flexure based joints
- WPS are attached directly on the girder
- WPS need to open diagonally or supported slightly differently

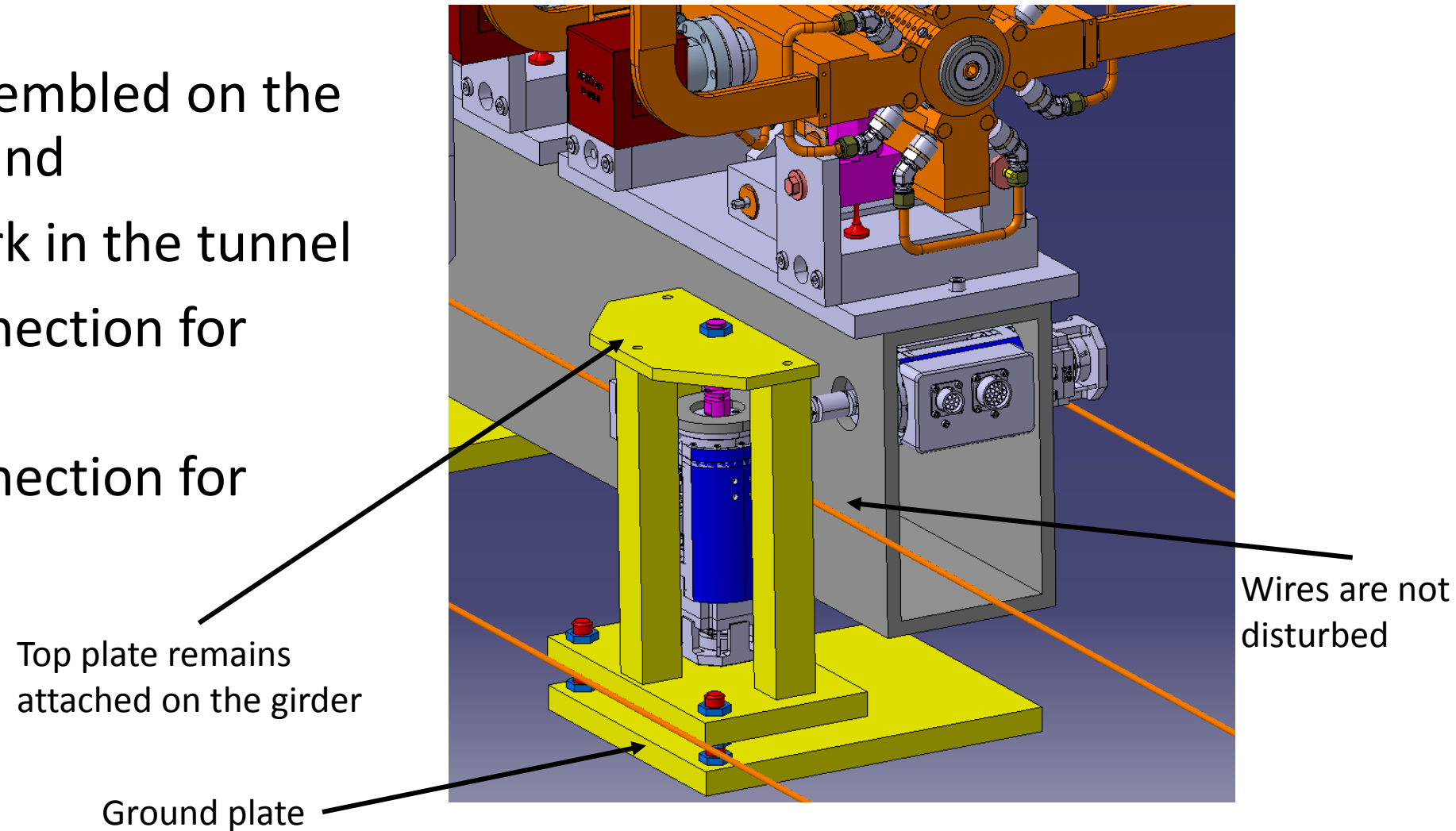
Vertical DoF

Horizontal
DoF



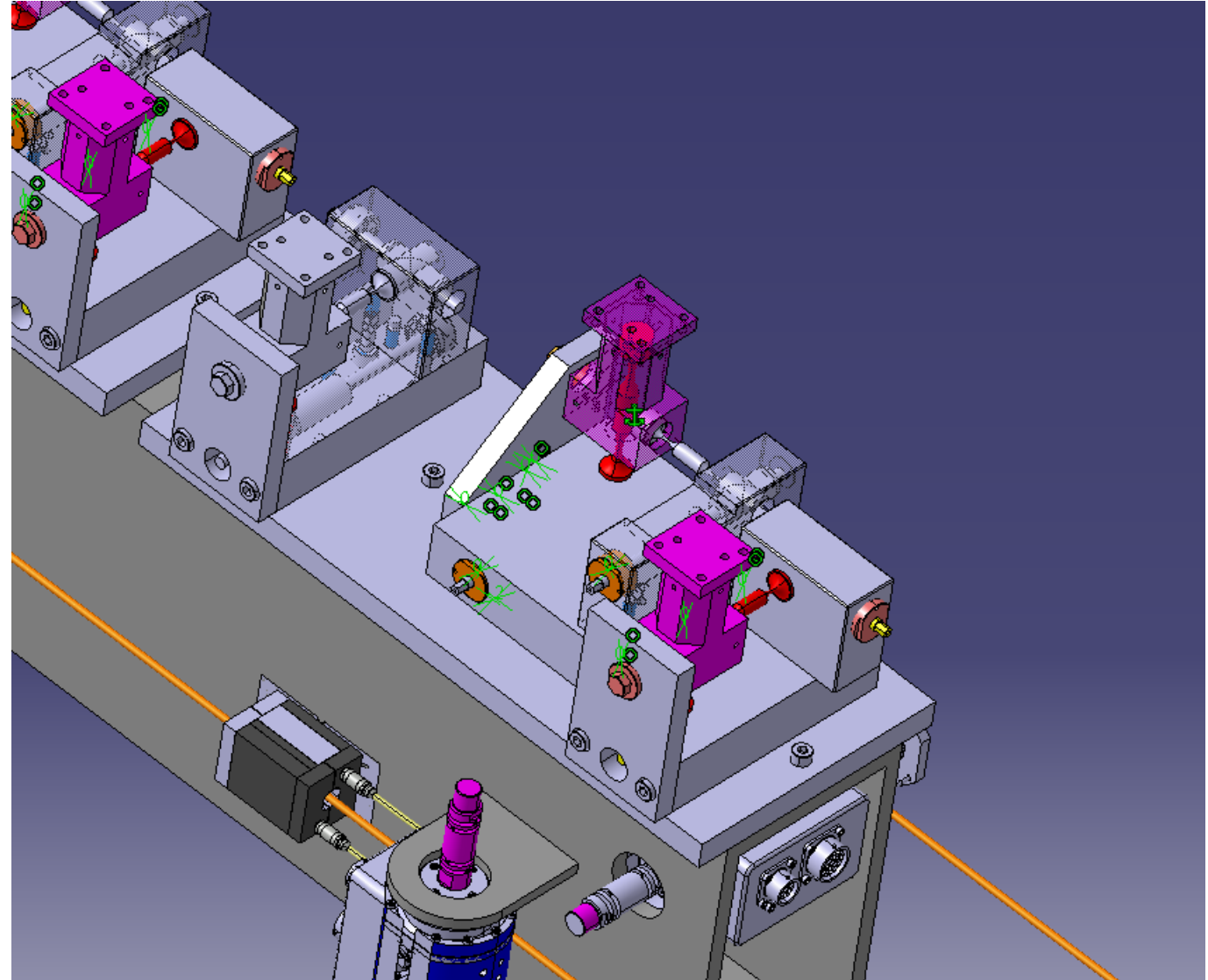
Vertical installation

- Movers are assembled on the girder beforehand
- Minimizing work in the tunnel
- One single connection for electronics
- One single connection for cooling



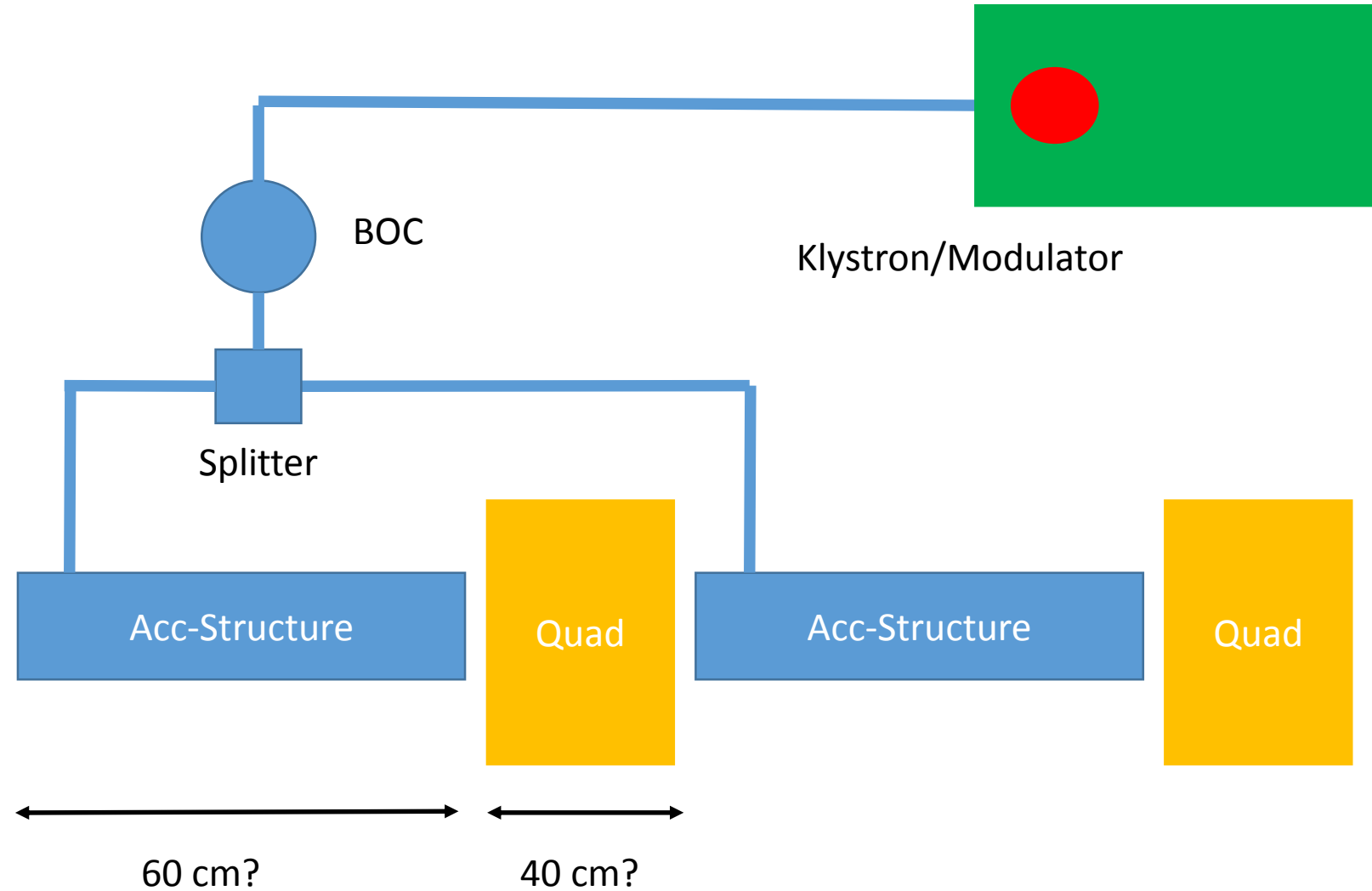
SAS adjustable support

- 6 DoF support based on flexures and wedges



Courtesy J. Vainola

Module layout of XLS?



Summary

- New CLIC design for K-module can be adapted
- Lattice needs to be defined
 - > AS length, Quad length, how many AS between quads
- Space allocations for upstream RF chain?