ASI makes DIY light sheet ~~easy~~ easier

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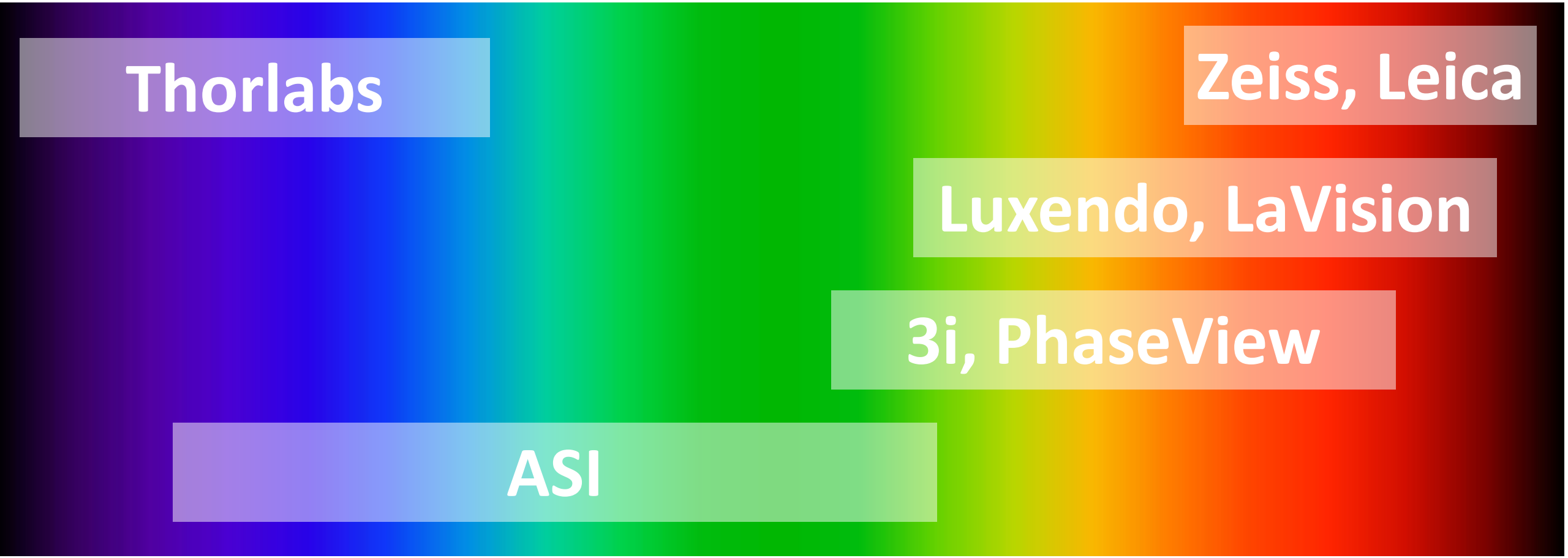
#LSFM18 Tecno-bite

Spectrum of light sheet solutions

APPLIED SCIENTIFIC INSTRUMENTATION

Physicists **Biologists**



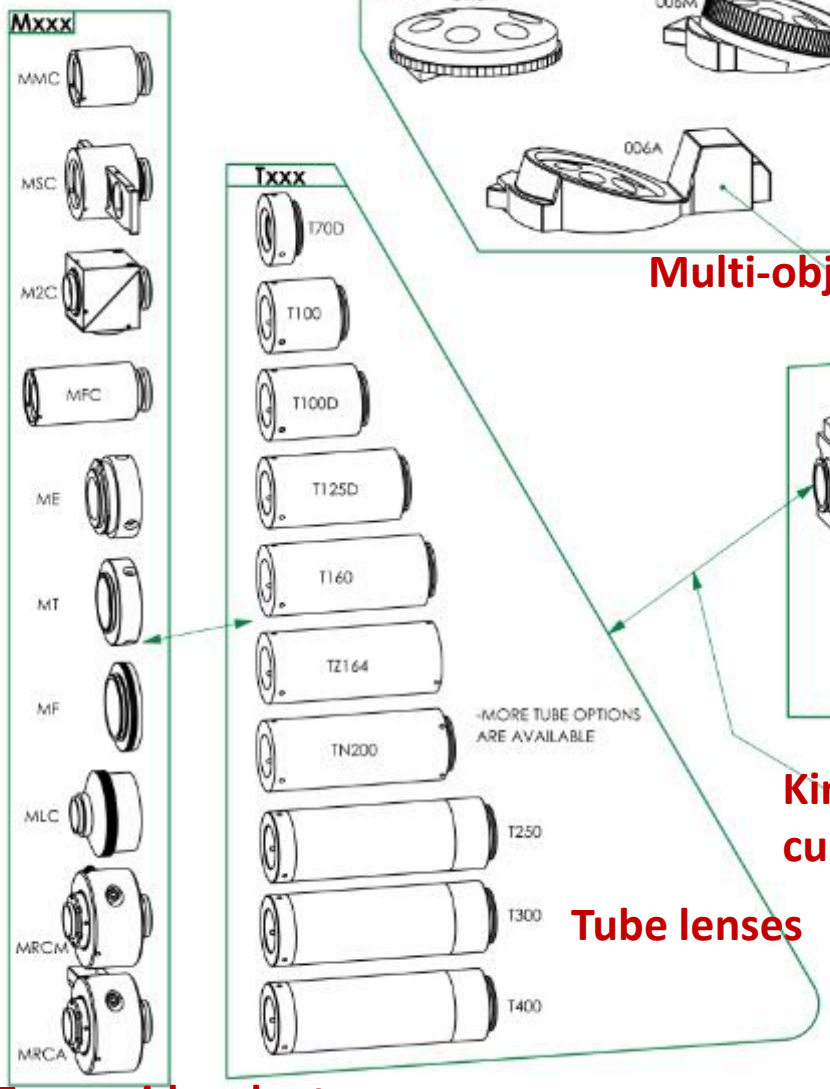
Challenges for DIY light sheet

APPLIED SCIENTIFIC INSTRUMENTATION

- Assemble and align components
- Hardware synchronization
- Acquisition software
- Modify as required
- Replicate for your friends

Modular microscopes

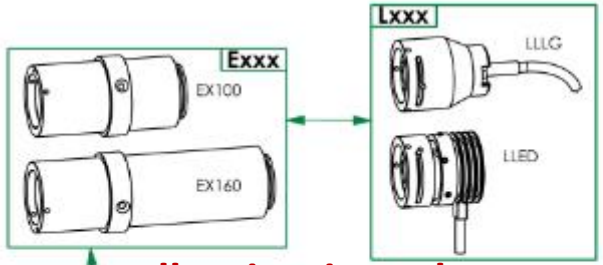
APPLIED SCIENTIFIC INSTRUMENTATION



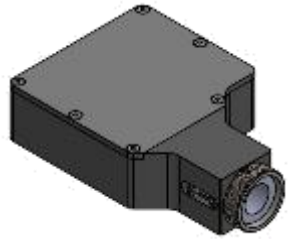
Focus-side adapters

Tube lenses

Multi-objective holders

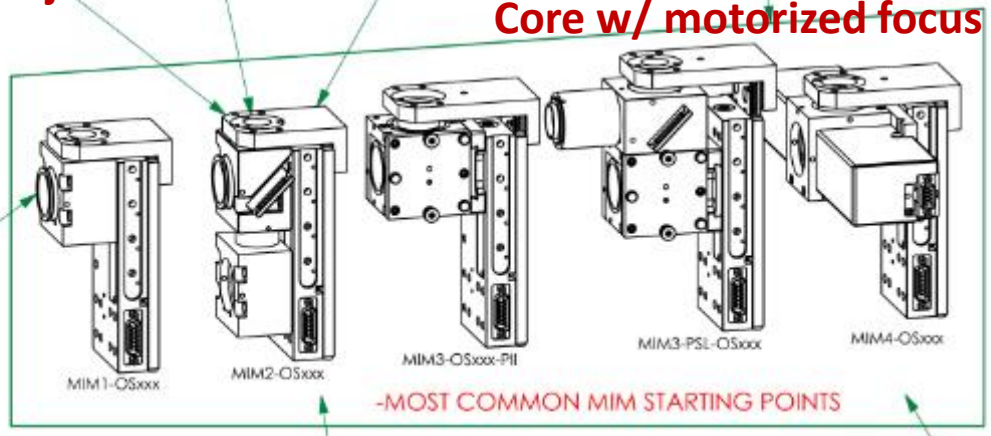


Illumination adapters

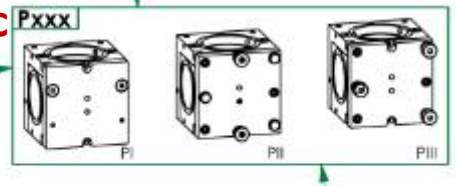


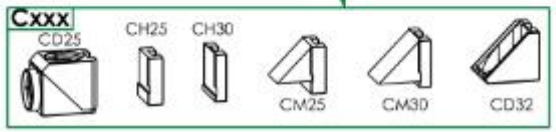
hardware autofocus (CRISP)

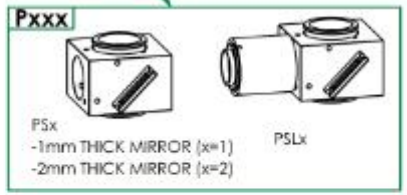
Core w/ motorized focus



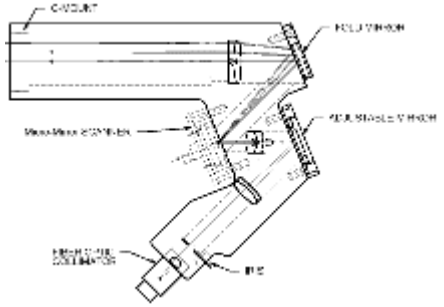
Kinematic cubes







Filter cubes and mirrors

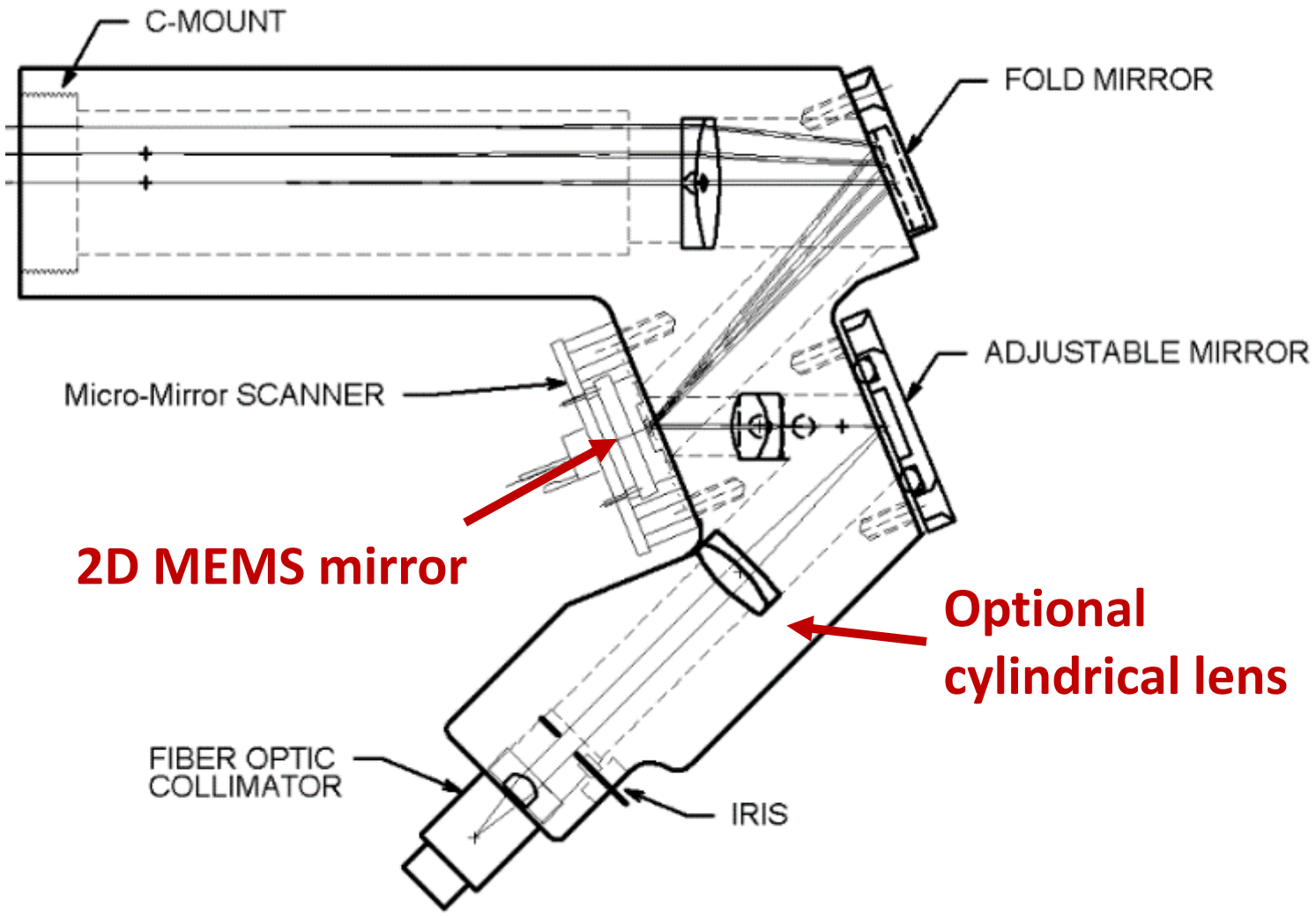


Lightsheet generator

Others:

- Tunable lens
- Filter wheels
- Port switches
- Etc.

Light Sheet Components



~17x, NA ~0.4, 12mm WD
multi-immersion
chemically resistant

Synchronization

Light sheet, stages and/or XY stage, cameras, lasers, tunable lenses, etc. must be tightly synchronized → **hardware synchronization**

Modular controller
Internal TTL triggering

Physicists

Biologists

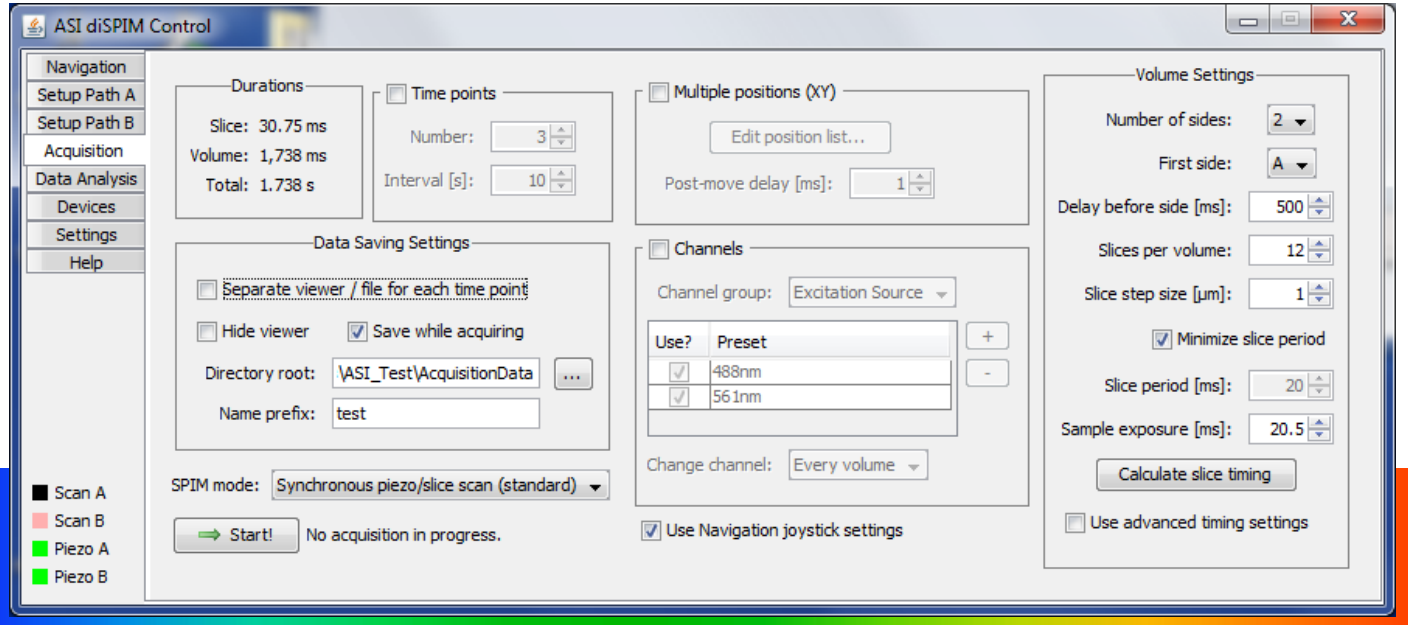
DAC cards, bespoke control

Black box

Acquisition Software

Live view for alignment
Configure acquisition
Save images with metadata
Etc.

Micro-Manager plugin
Free and open source



Physicists

Biologists

Custom
LabView/Matlab

$$$$
Proprietary

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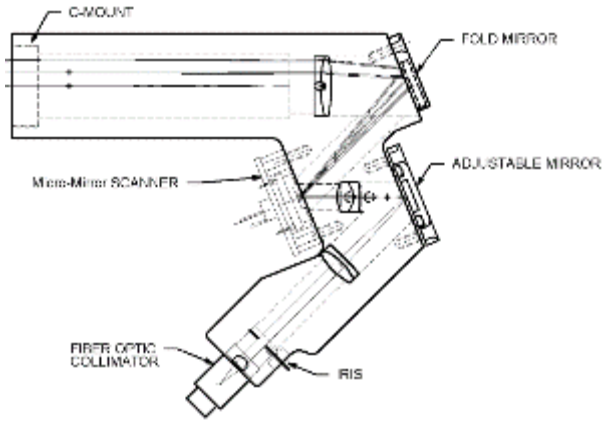

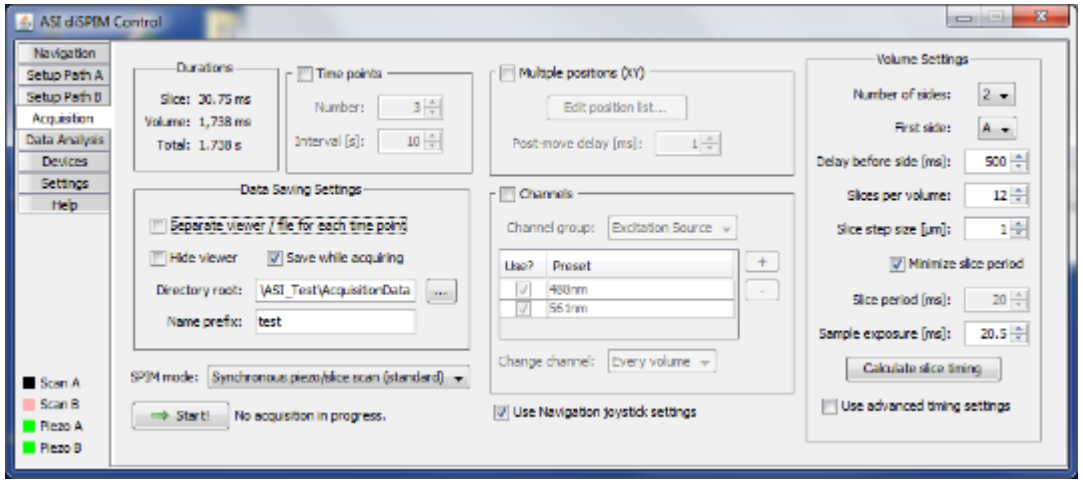

Let's talk!

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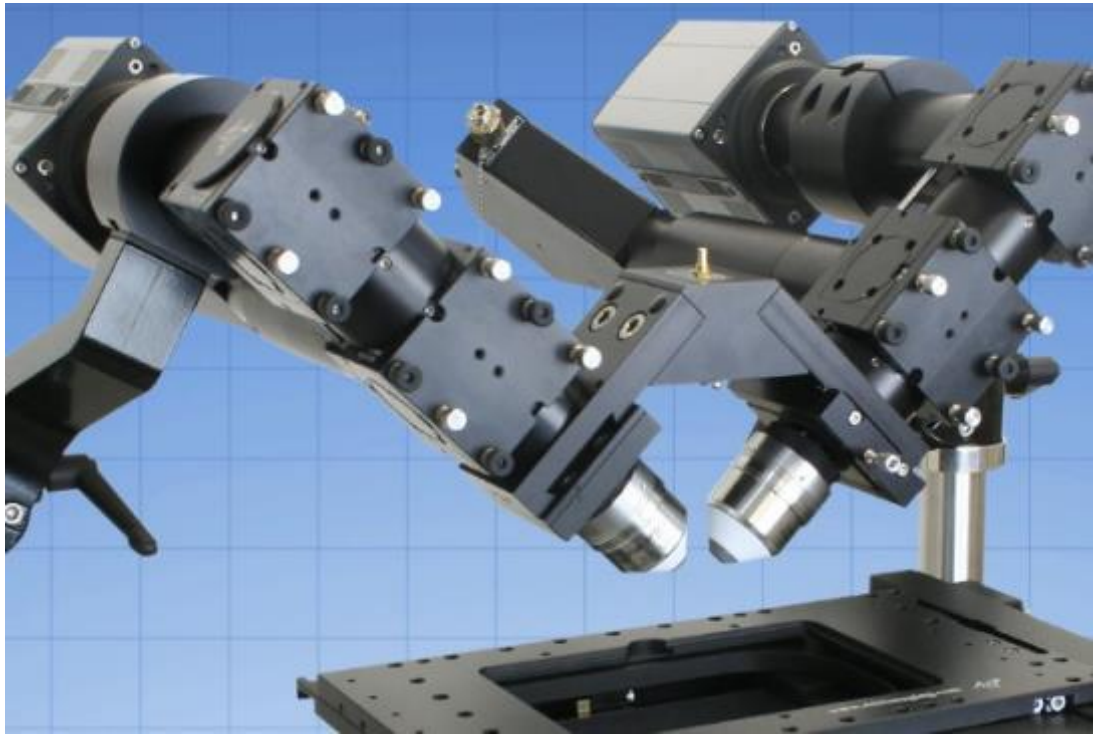

ct-dSPIM in basement U47

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Physicists

Biologists

Are you here?