Source Scan Table Mechanics

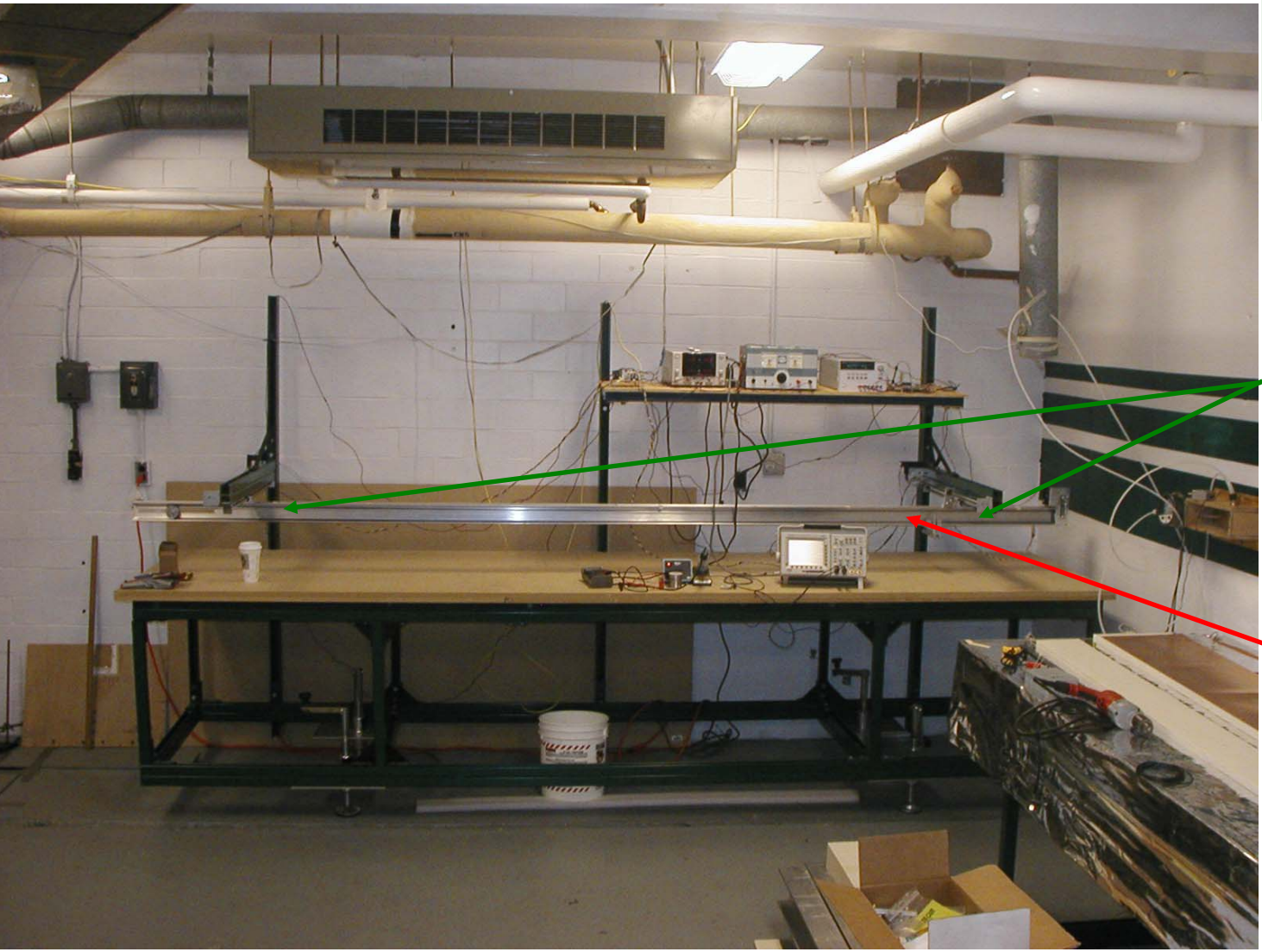


Table frame made from uni-strut

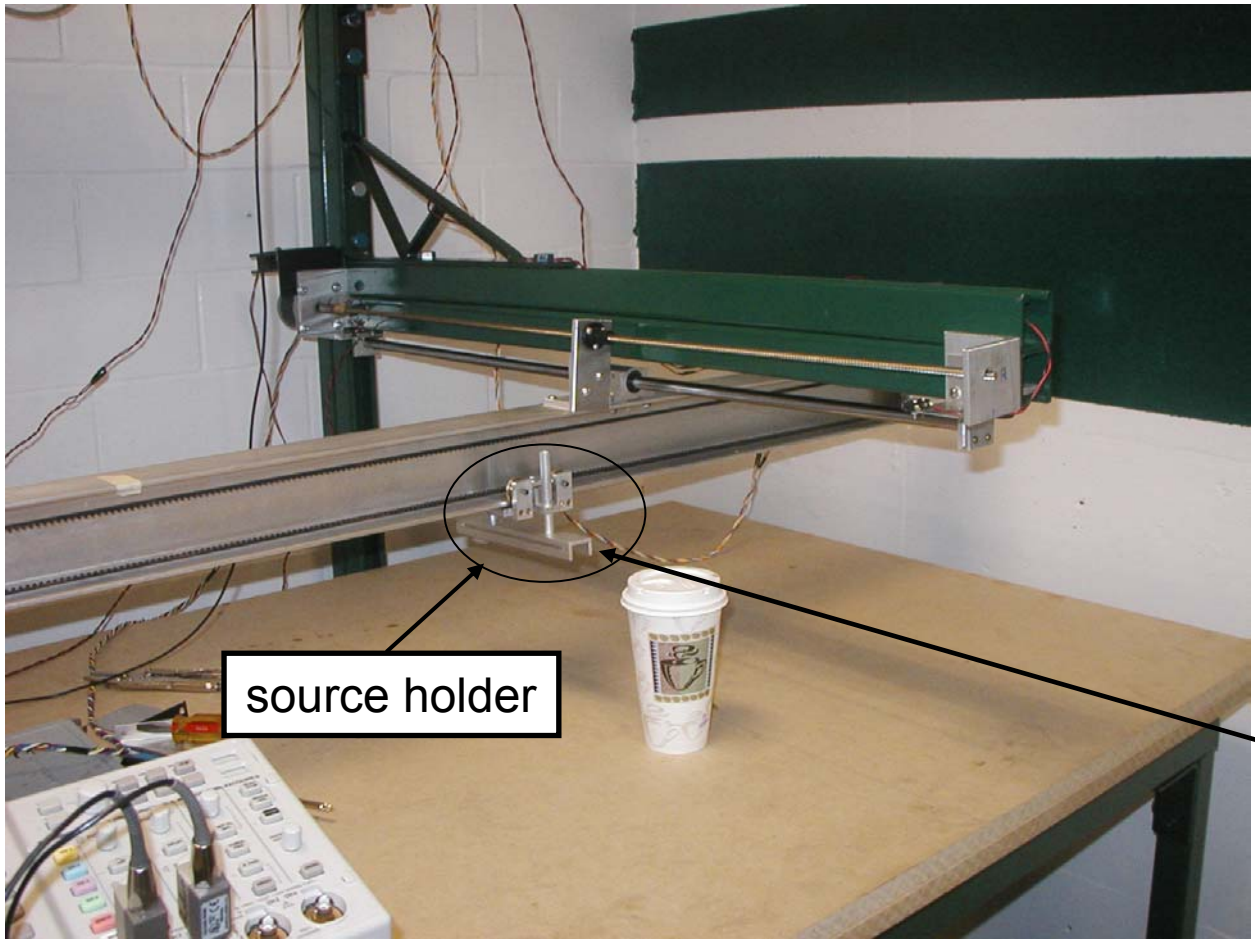
scan will use 3 10μC Cs^{137} sources

I-beam moves ⊥ to green unistrut beams

sources move along 4m I-beam

movement controlled by 3 stepper motors

Source Holder Drive

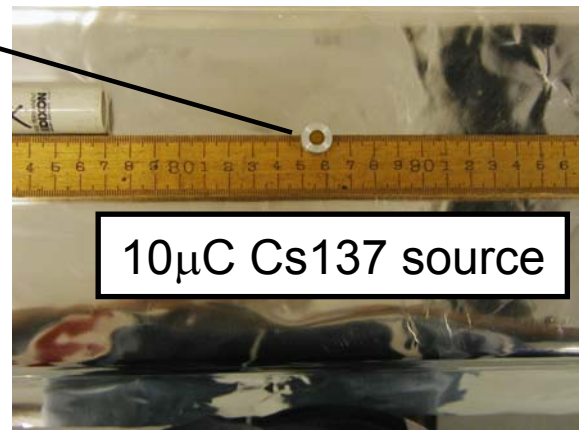


Sources move along I-beam via drive belt

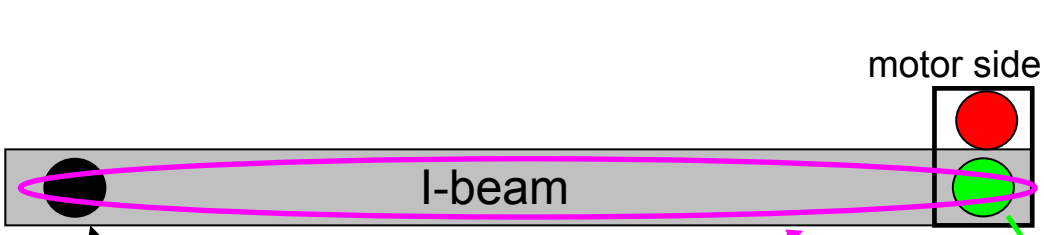
Stepper motor moves belt via gears and coupling belt

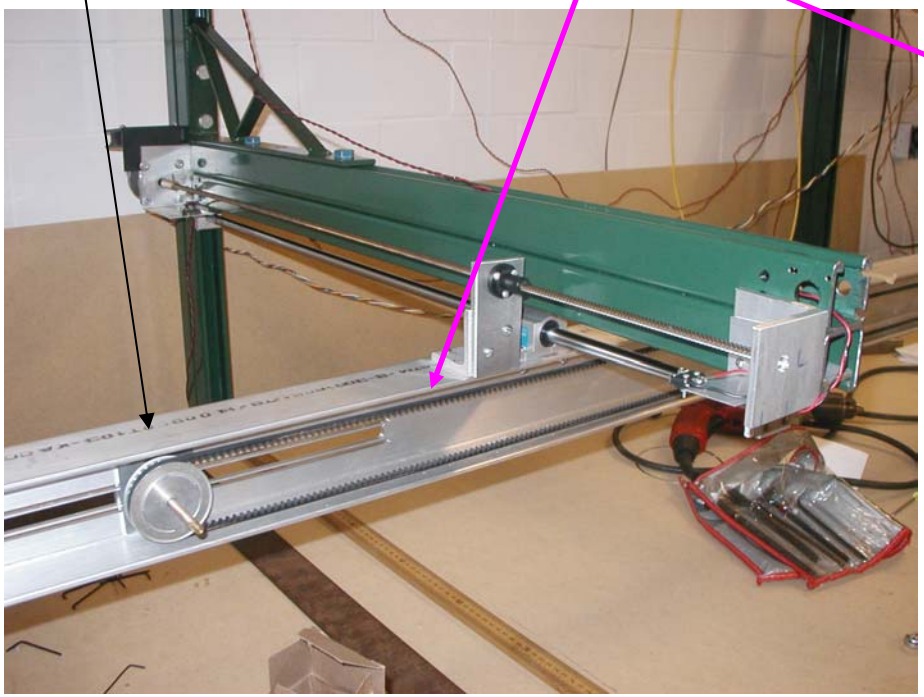
Stepper motor controlled by computer

Speed of sources:
0→15 cm/sec

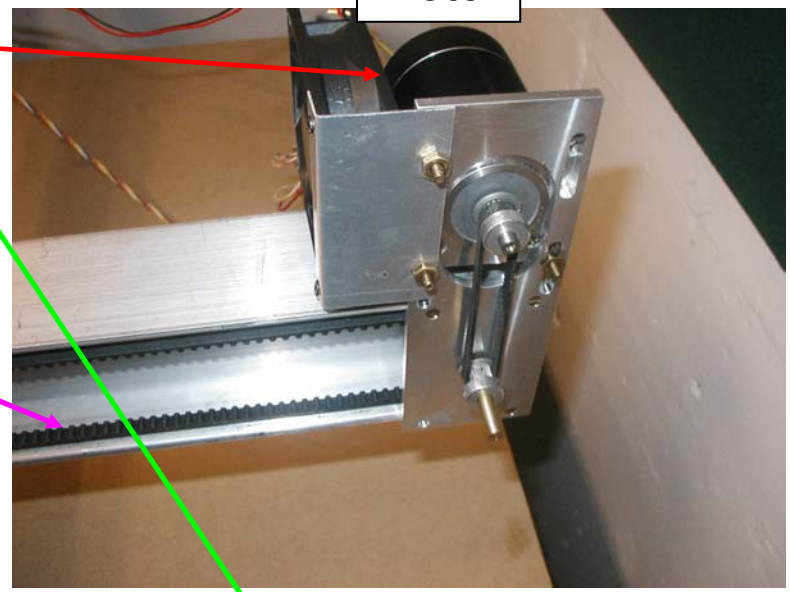


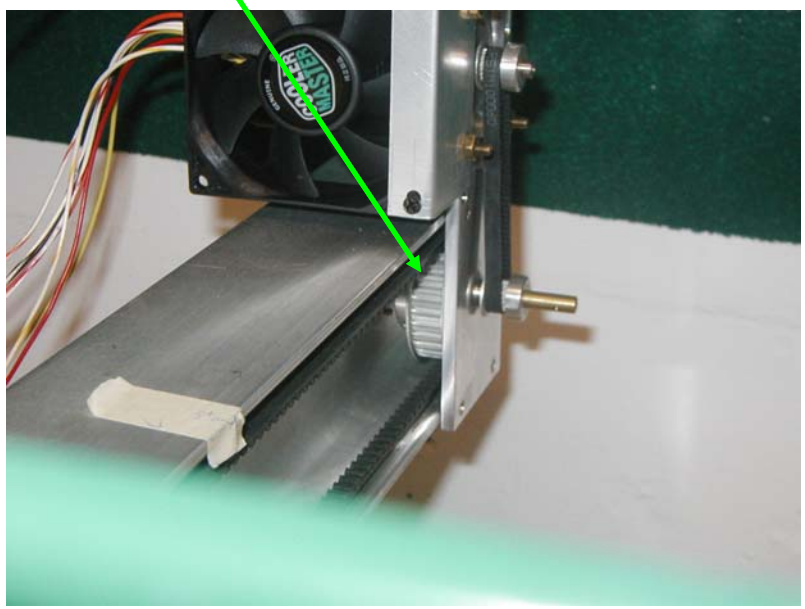
Details of Source Holder Drive



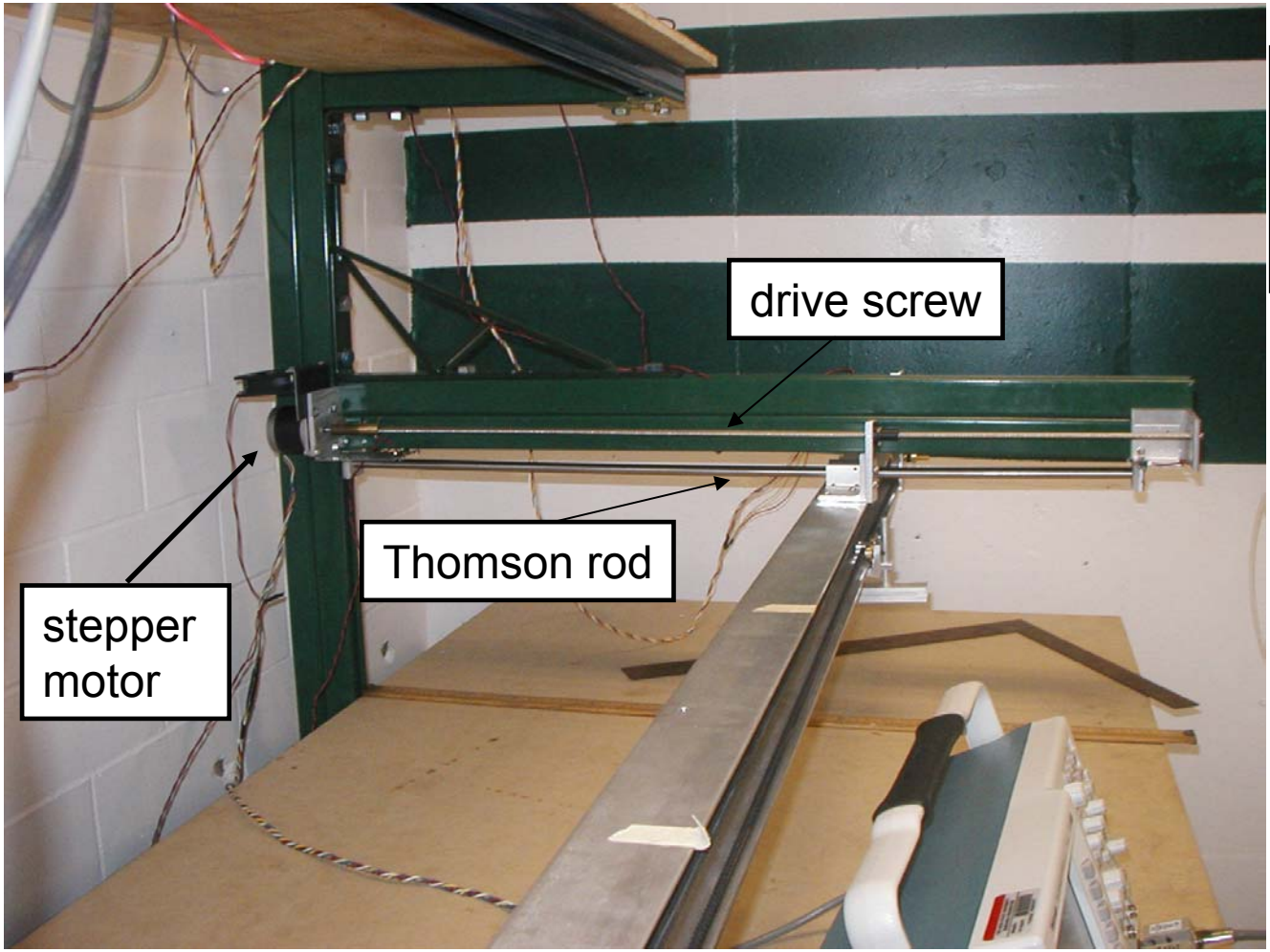


motor





Movement of I-beam



Stepper motors turn a threaded rod
pitch: 1 in= 1 revolution
1 step= 125 μm!

I-beam moves along "Thomson rods".
Pillow block connects Thomson rod to I-beam.

I-beam can move:
0→2 cm/sec
Set by computer

I-beam does not rotate as it moves:
ends of I-beam stay aligned to <2mm over 70 cm of travel.

To Do List

Level the table top

tubes must lie on flat surface (< 0.5mm)

Install a ground plane on table

will use 2 mil stainless steel

Run motors for several days

system must be robust

Finalize documentation

make “as built” drawings

Incorporate HV system

record tube current vs source position

start with our CAEN supply

switch to OSU supply soon

Software development