

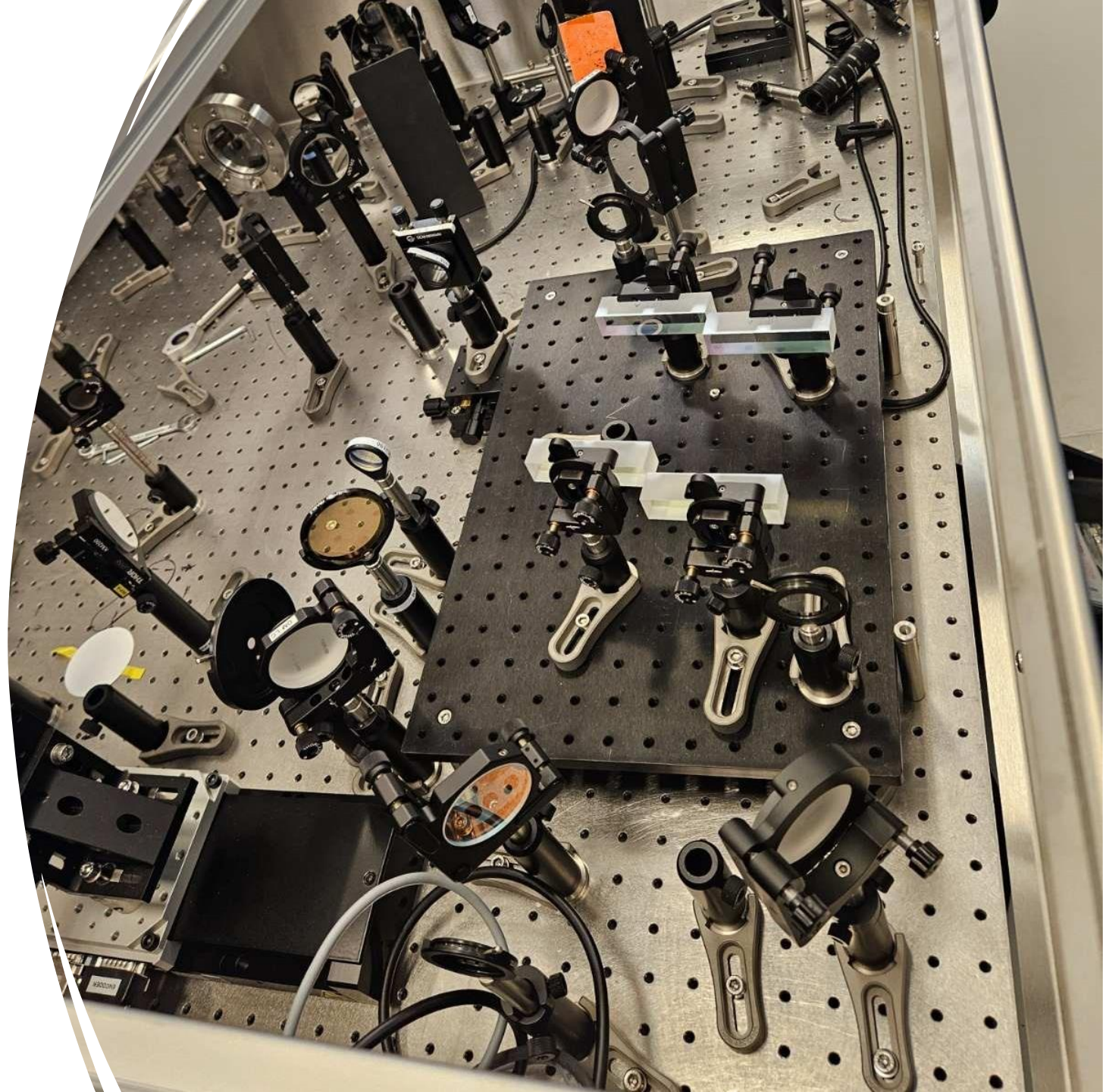
**THE EXTREME LIGHT INFRASTRUCTURE, ELI ERIC
EXPERIMENT PROPOSED BY PROF. G. MEDIN AT THE 3TH ELI ERIC USER CALL HAS BEEN ACCEPTED
BEAM TIME AWARDED IN DURATION OF 4-5 WEEKS**

The first week of experiment
Duration 20/04/2024-27/06/2024:

BSc student participated
Danijela Mrkić
Vuk Baletić

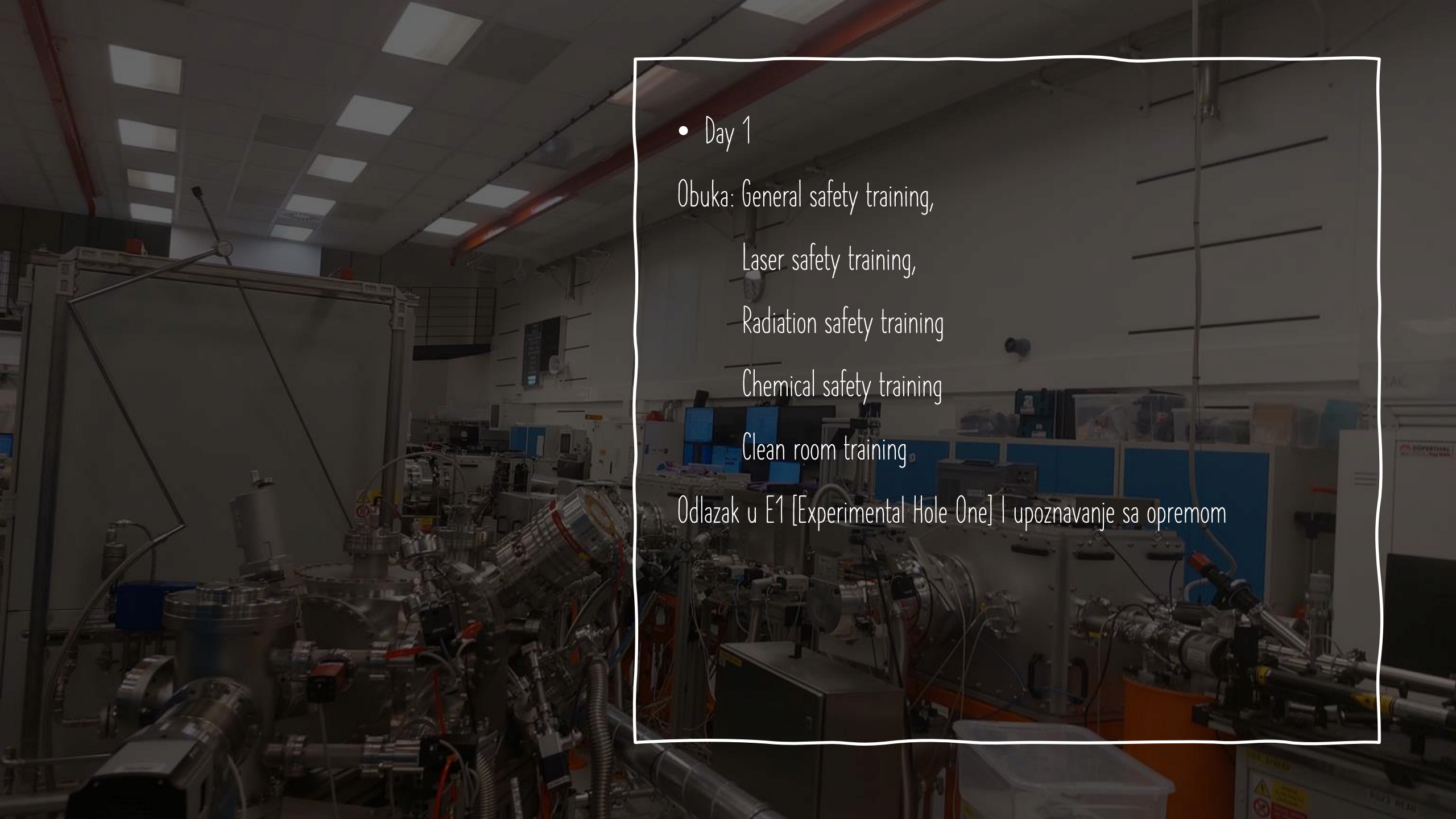
The Extreme Light Infrastructure

Je jedna od najnaprednijih istraživačkih infrastruktura na svijetu zasnovana na laserima. ELI obezbeđuje pristup širokom spektru visokoenergetskih laserskih sistema i sekundarnih izvora. To omogućava najsavremenija istraživanja i nove režime fizike visokog intenziteta u fizičkim, hemijskim, medicinskim naukama i naukama o materijalima.





TCT (Transient Current Technique) je metod koji se koristi za mjerenje svojstava nosača naelektrisanja u poluprovodničkim materijalima i uređajima. Posebno je koristan za proučavanje dinamike transporta naelektrisanja, životnog vijeka i drugih parametara u poluprovodničkim materijalima, kao što su silicijum, galijum arsenid ili silikonski karbid.



- Day 1

Obuka: General safety training,

Laser safety training,

Radiation safety training

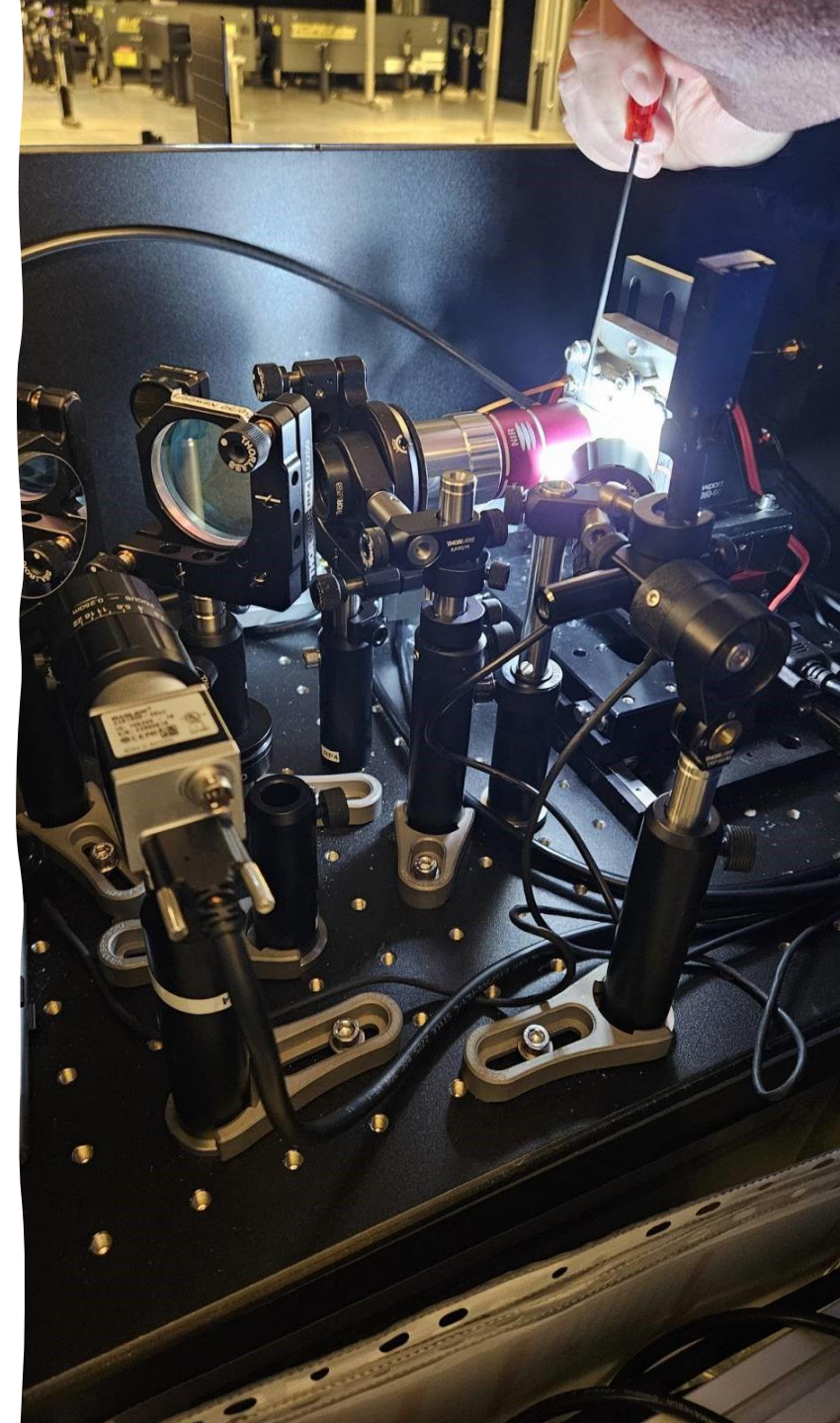
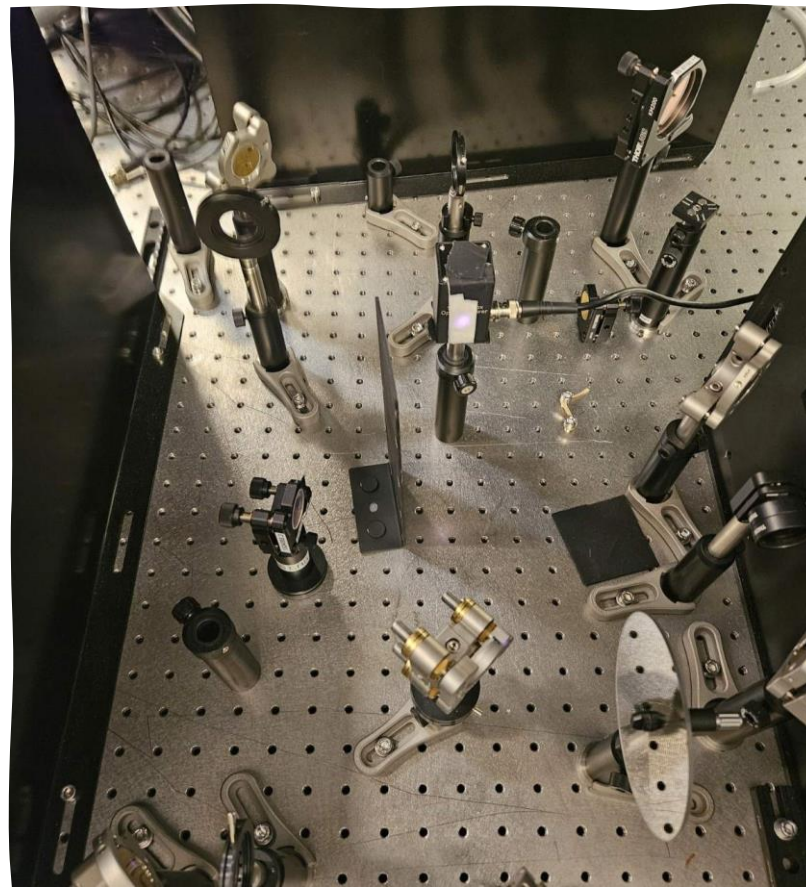
Chemical safety training

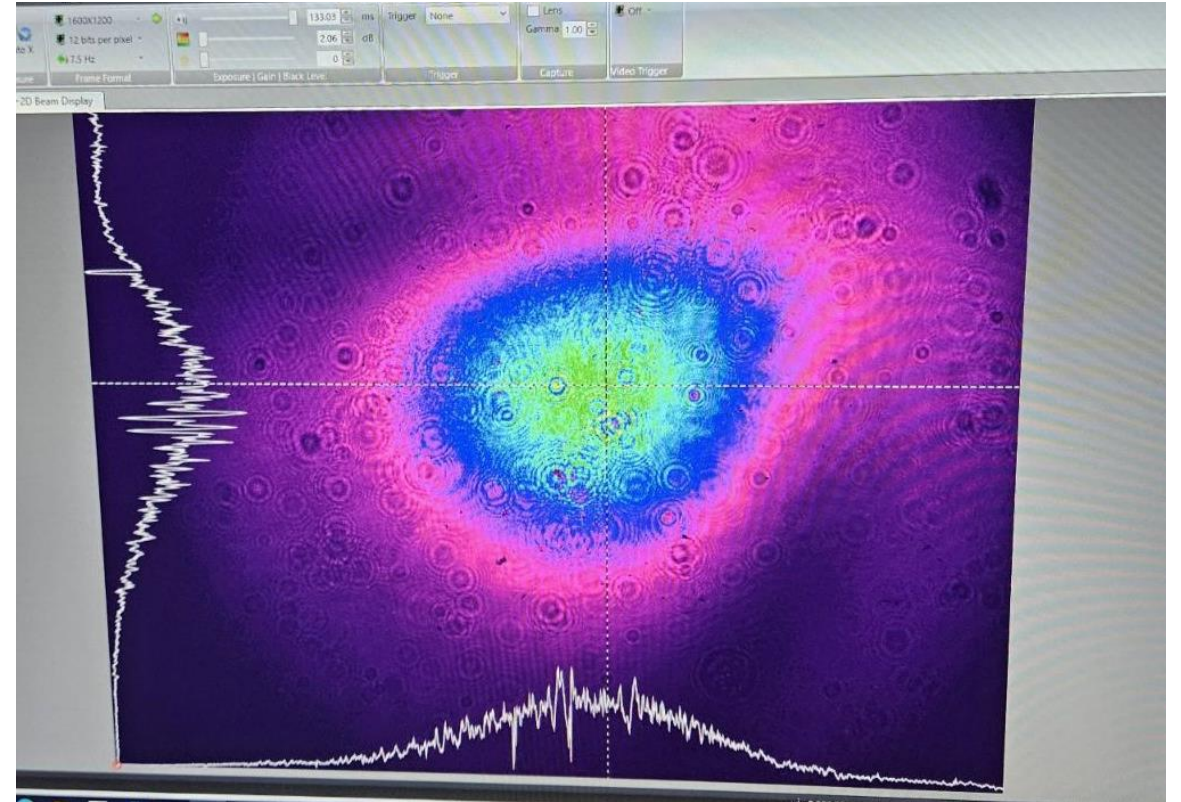
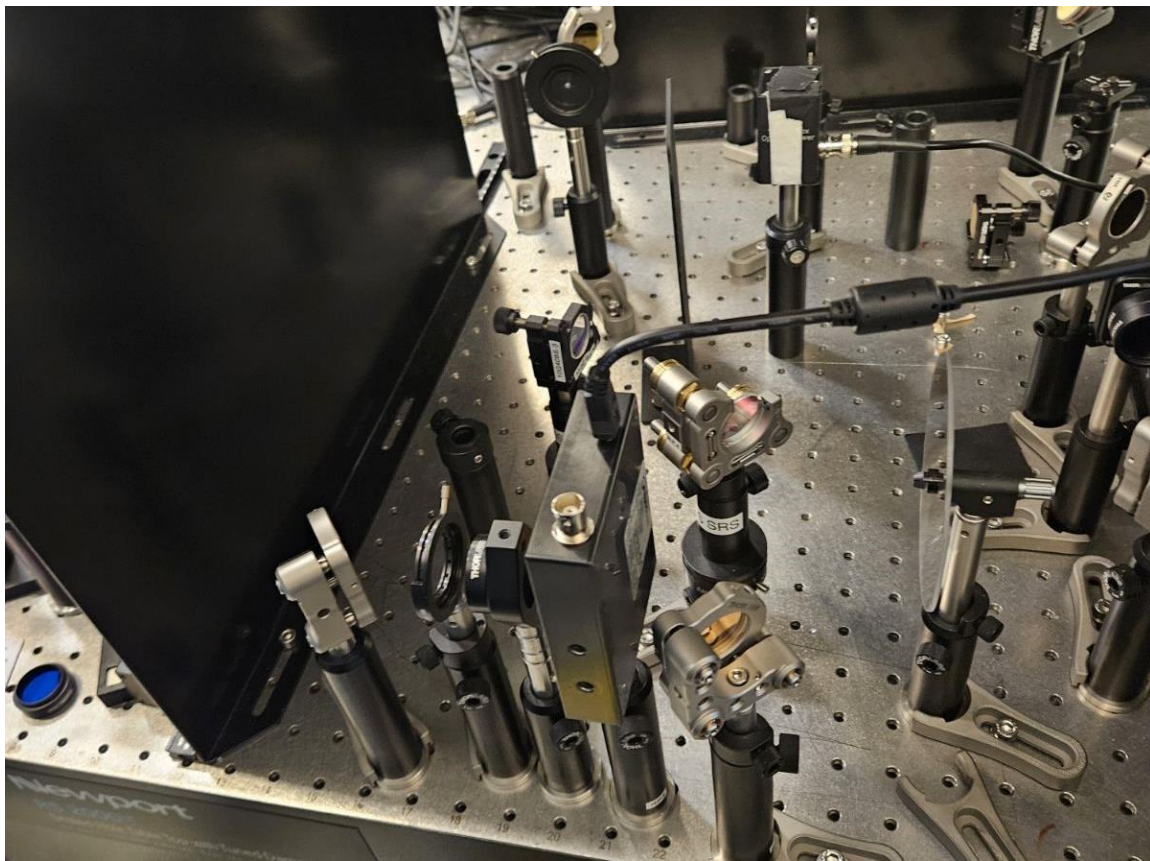
Clean room training

Odlazak u E1 [Experimental Hole One] | upoznavanje sa opremom



UPOZNAVANJE SA OPREMOM



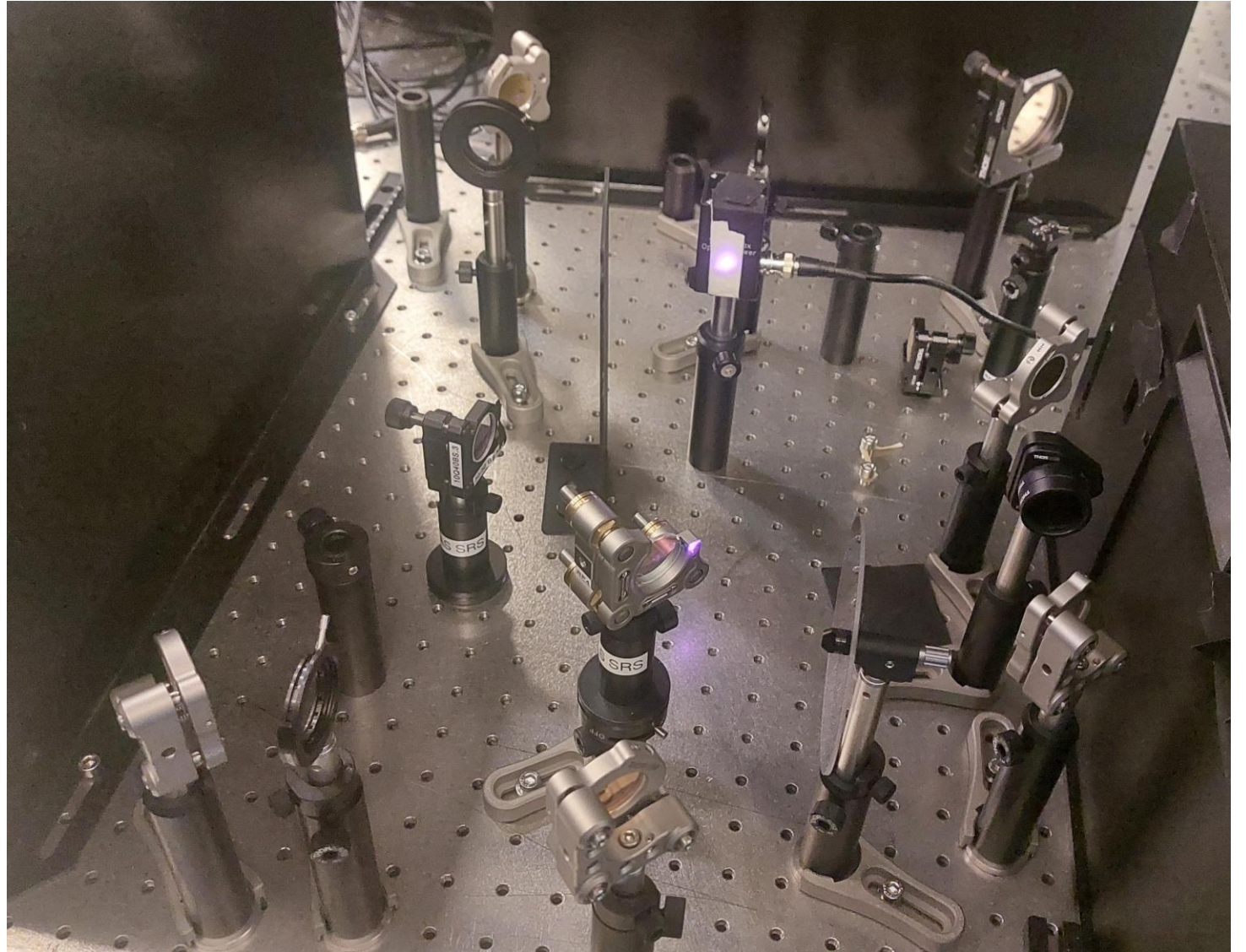


DAY 2

- Upoznavanje sa eksperimentom, kalibrisanje snopa lasera, promjena senzora, upoznavanje sa strukturom senzora, početak mjerenja na RD50 senzoru

DAY 3

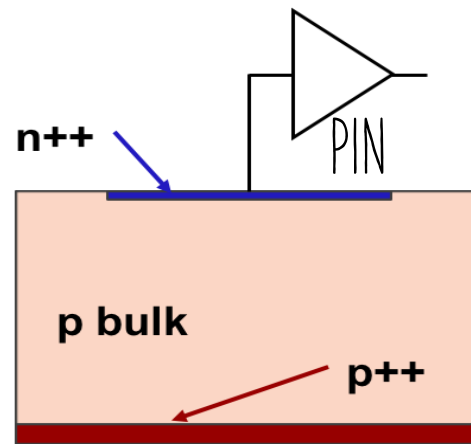
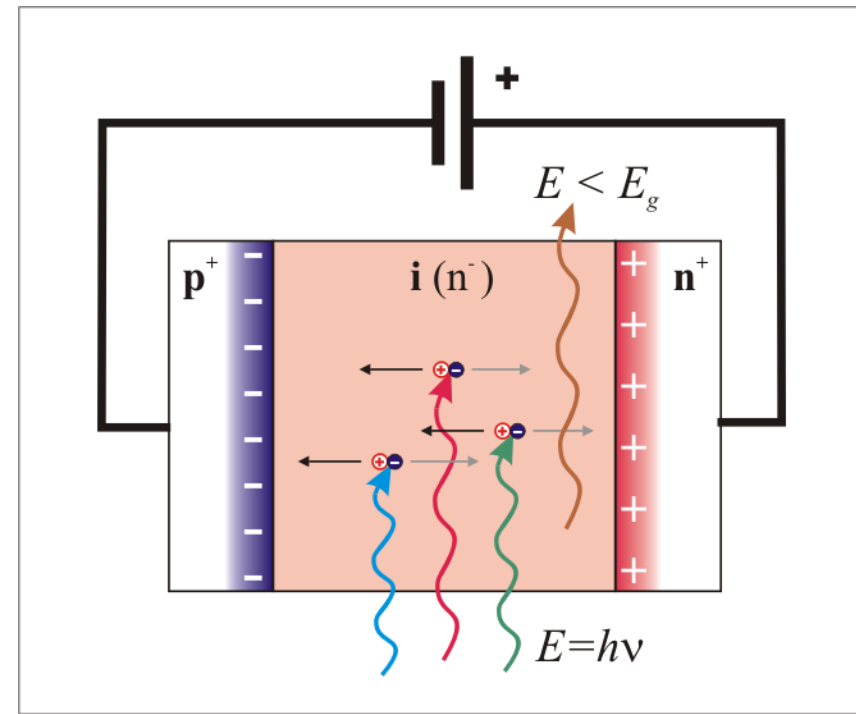
- Nastavak mjerenja na RD50 PiN-u
- Instalacija novog AIDA Innova PiN senzora, mjerenja u toku noći



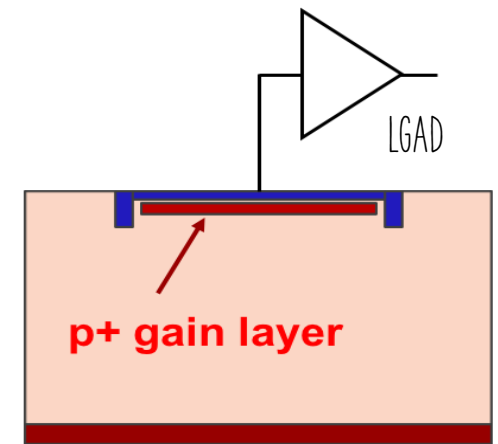


RD50 naučna kolaboracija je grupa istraživača koji rade na detektorima poluprovodnika, prije svega za visokoenergetske eksperimente iz fizike poput onih sprovedenih u CERN-u

LGAD (Low Gain Avalanche Diode) sa unutrašnjom kontrolisanom multiplikacijom, 10 ps – vremenska rezolucija; inoviran je unutar RD50 kolaboracije i namijenjen za vremenski detektor za ATLAS i CMS experiment.



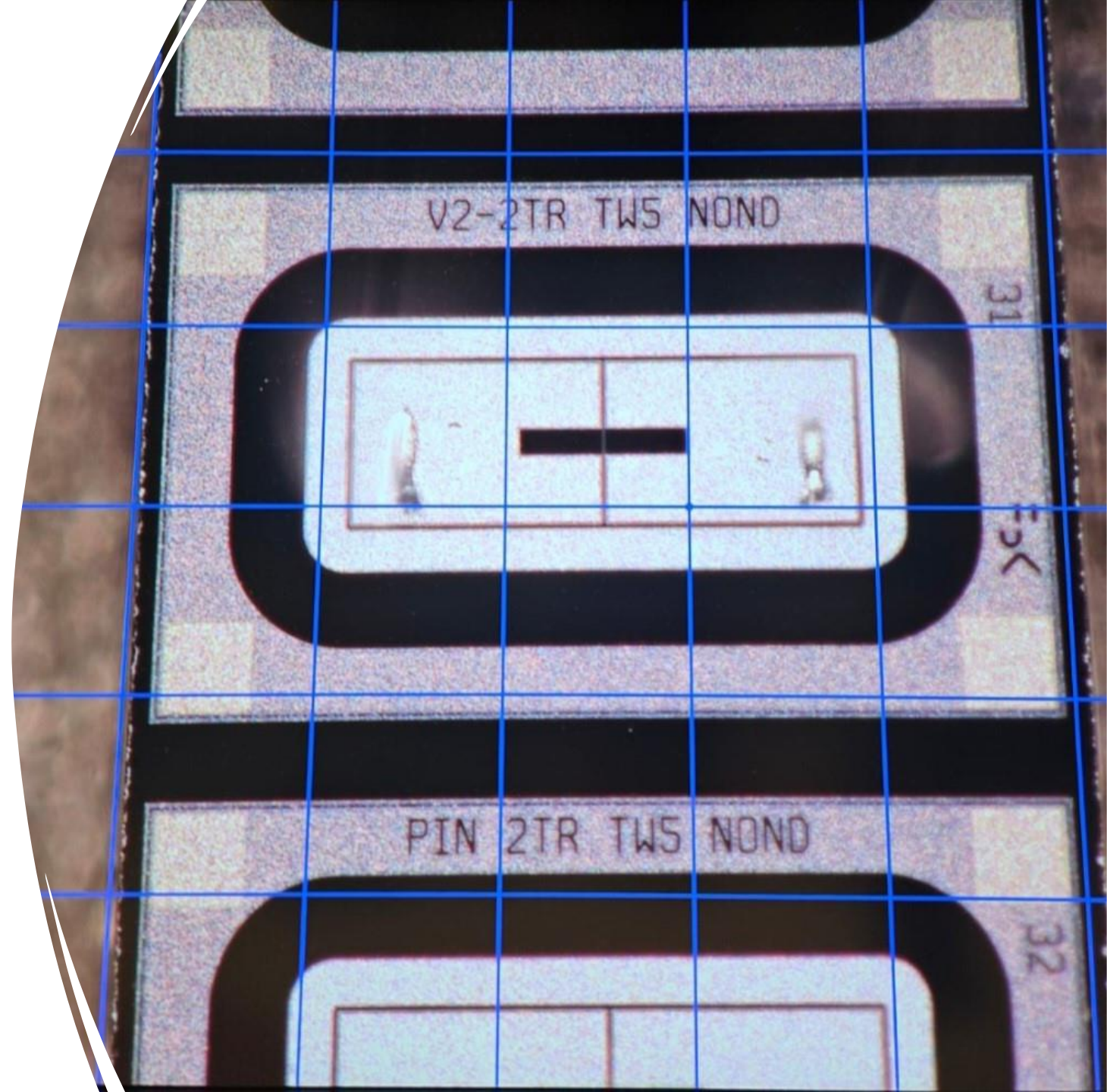
Traditional silicon diode



Low Gain Avalanche Diode

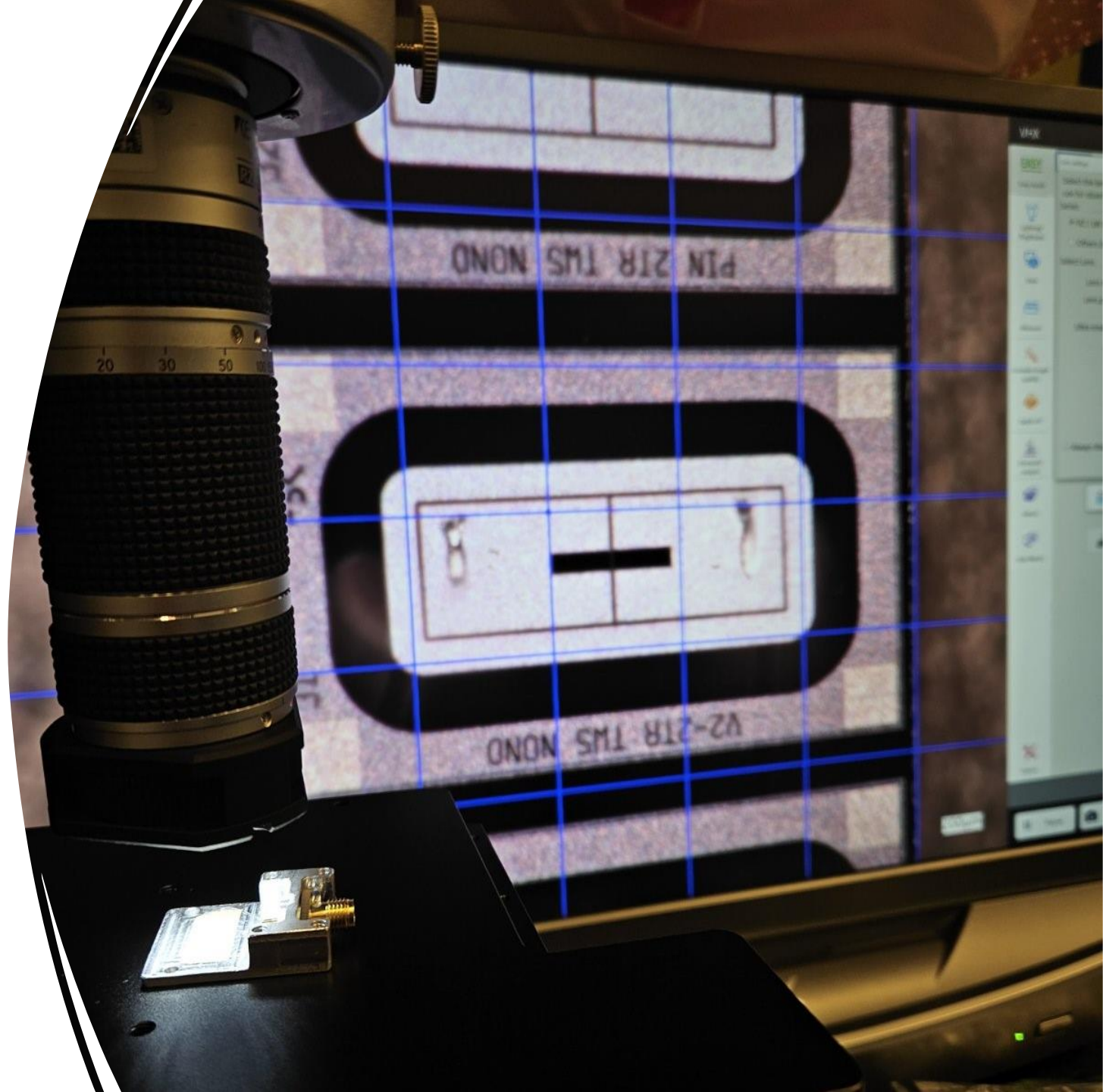
DAY 4

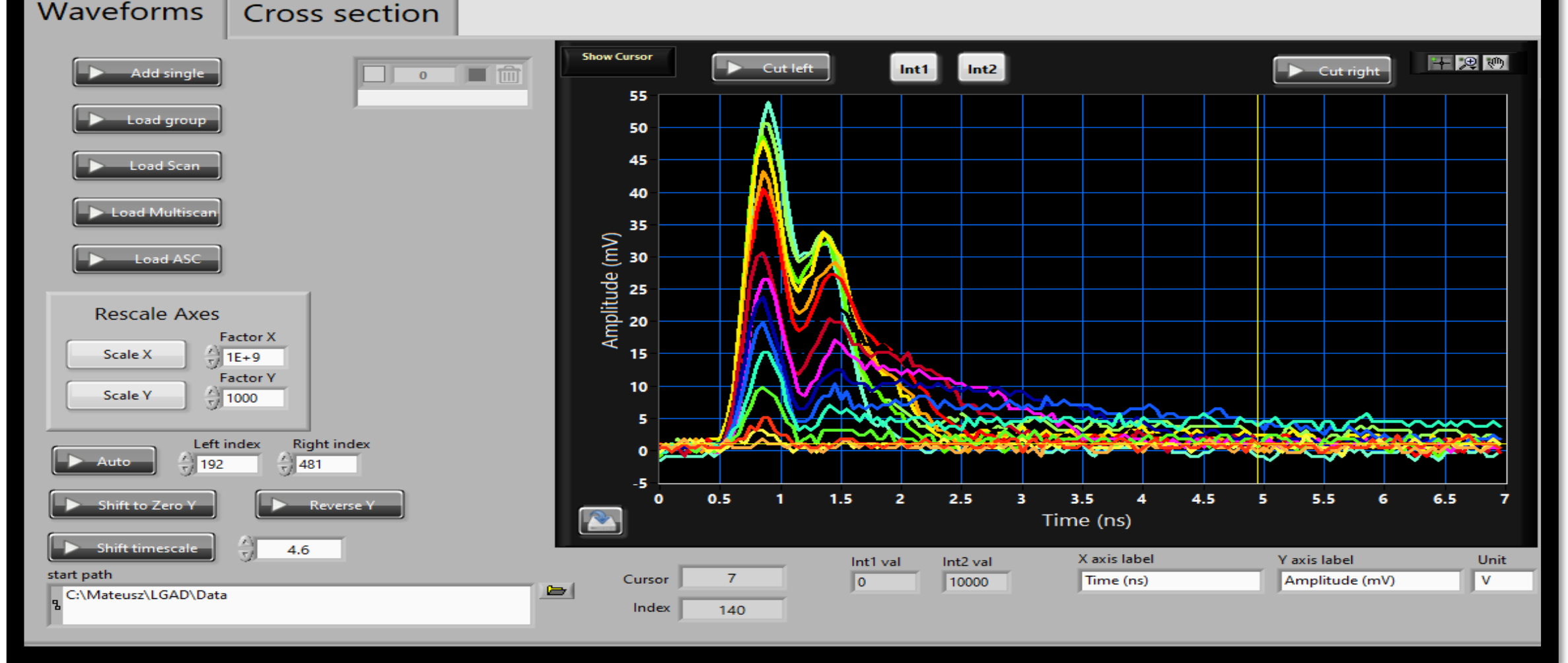
- Posmatranje senzora pod mikroskopom i učenje kako povezivati mikronski sensor sa HV.
- Samostalna mjerenja: učimo kako da aserom u mikrinskim koracima pucamo u Si sensor. Učimo kako da održimo mikronski prečnik laserskog snopa..
- **Skansirano sensor (piksele i interpiksel) tako sto ga osvjetljavamo fs-laserim (KHz, 60fs puls, 800 nm, dubina prodiranja u Si: 25 mikrona),**
- **Trazimo "ghost" signale koji su primjeceni u LGADu gdje su pikseli izolovani sa dva SiO₂ "trencha" ; Nema ih u PIN-u (gdje je izolacija isto uradjena sa 2 trencha)!**
- **Dvo je nastavak nedavno prihvacenog naucnog rada u NIM A**



AIDA INNOVA LGAD

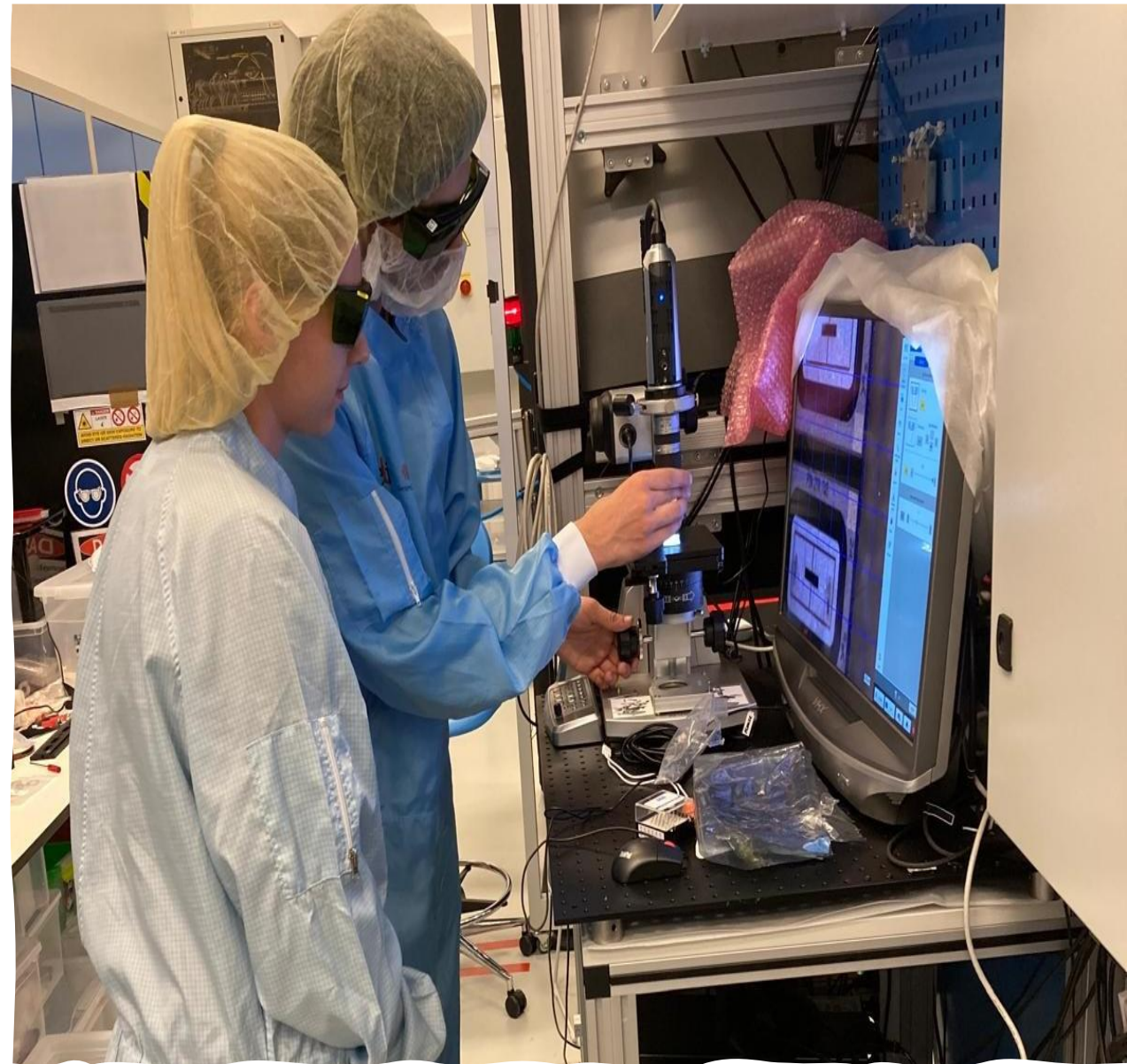
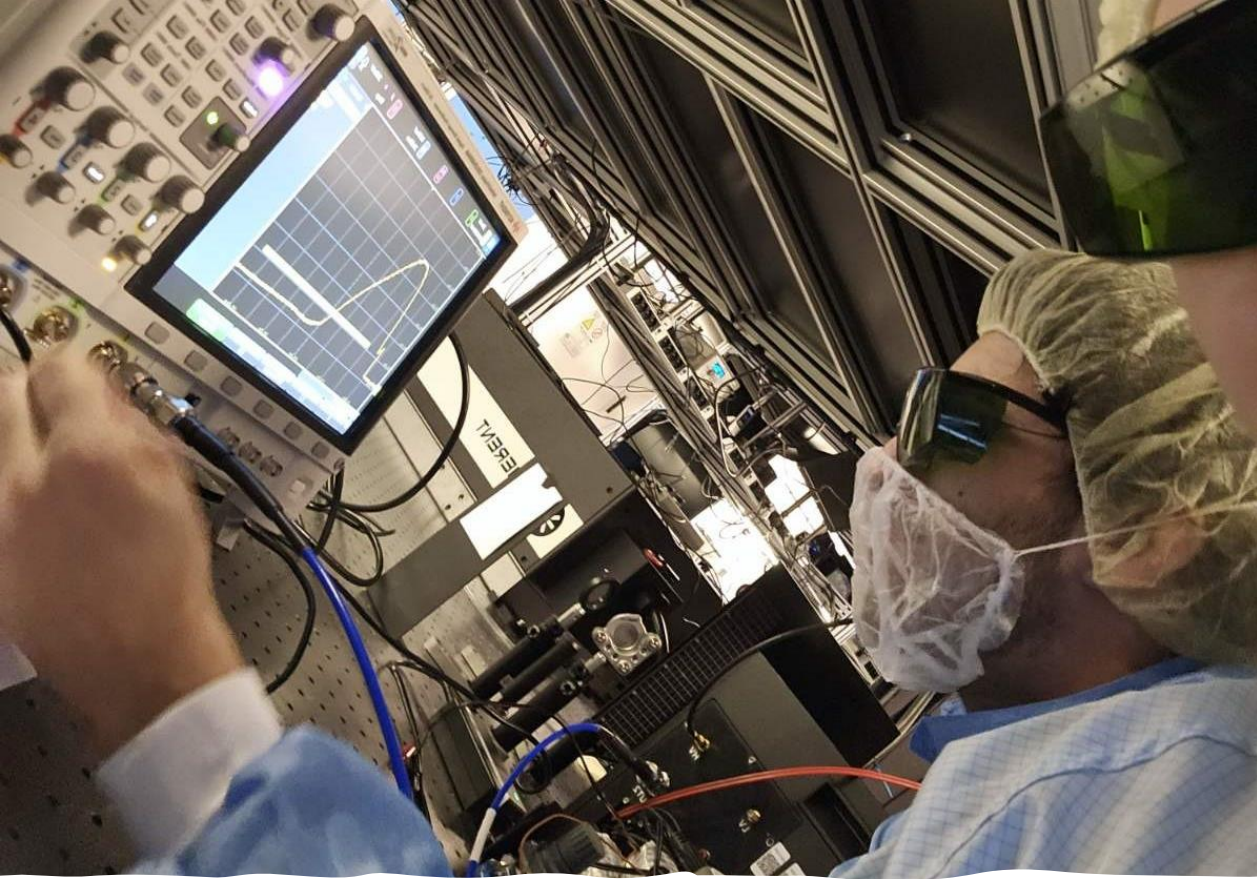
- Low Gain Avalanche sensor je sada unaprijeđen novim inovativnim pristupom problemu, dodat je ugljenicni sloj u konstrukciji senzora tako da sada Gain Layer ima duži životni vijek





DAY 5

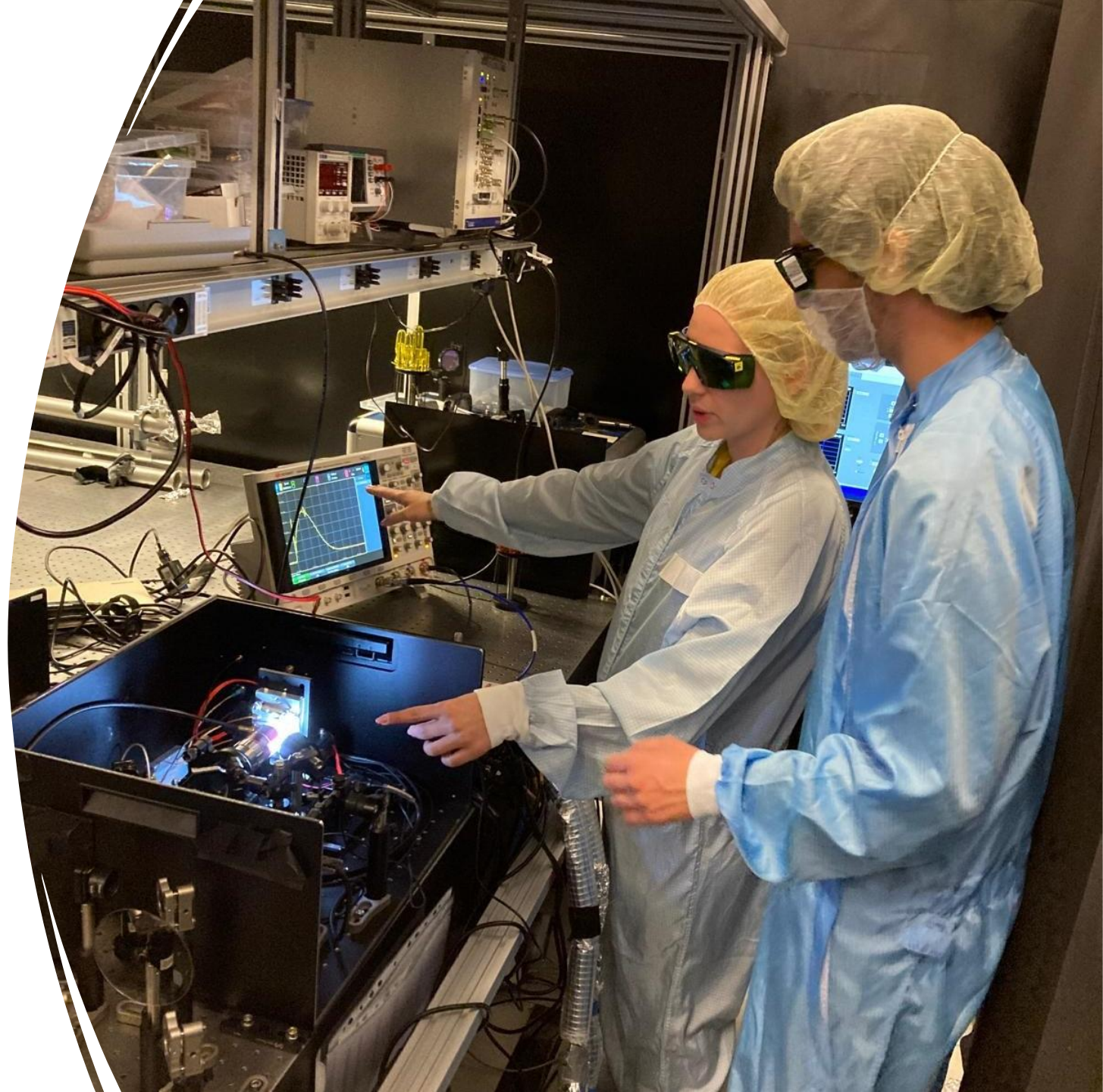
- Samostalna mjerenja uz povremene konsultacije sa ELI laser expertom

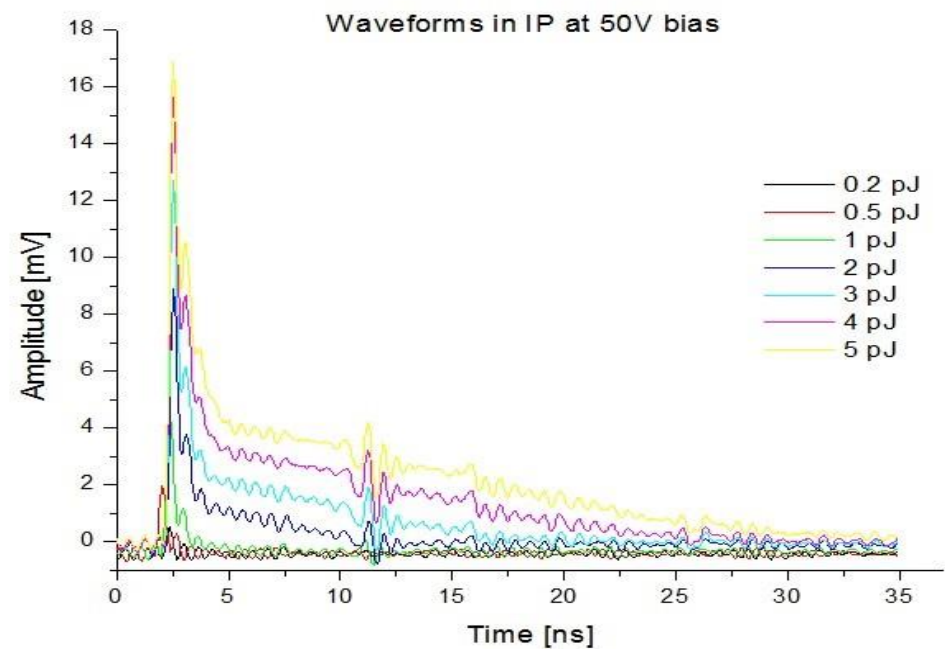
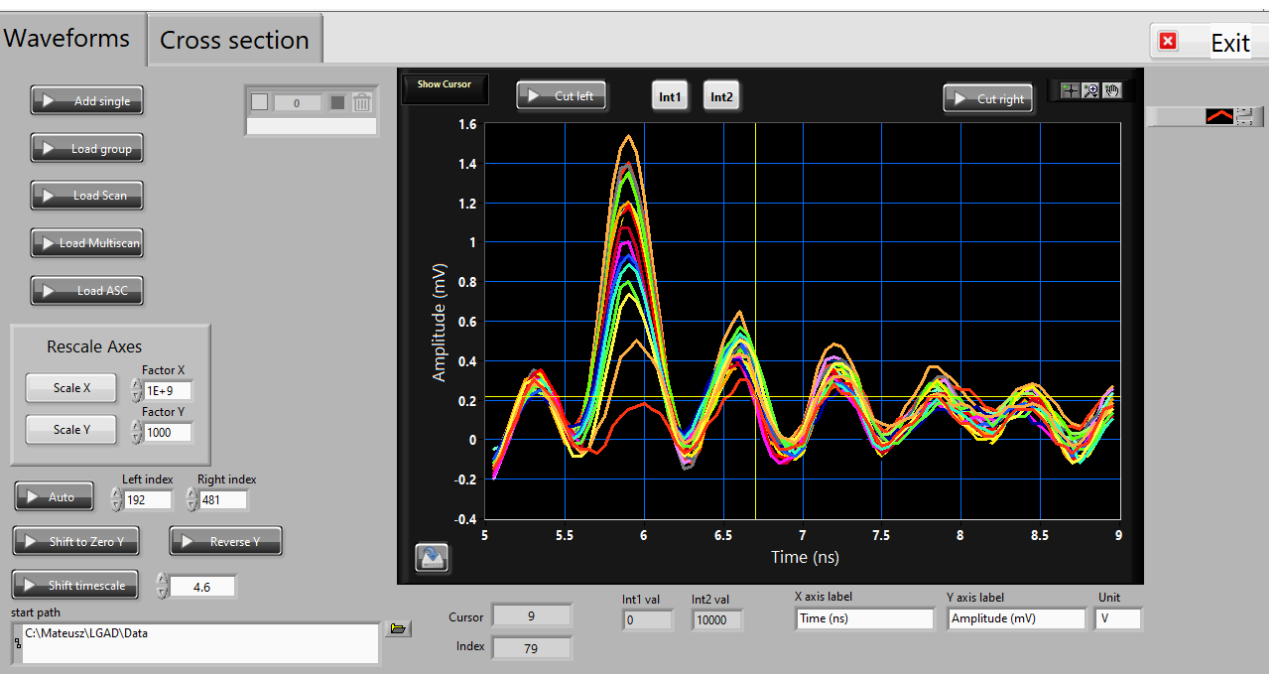
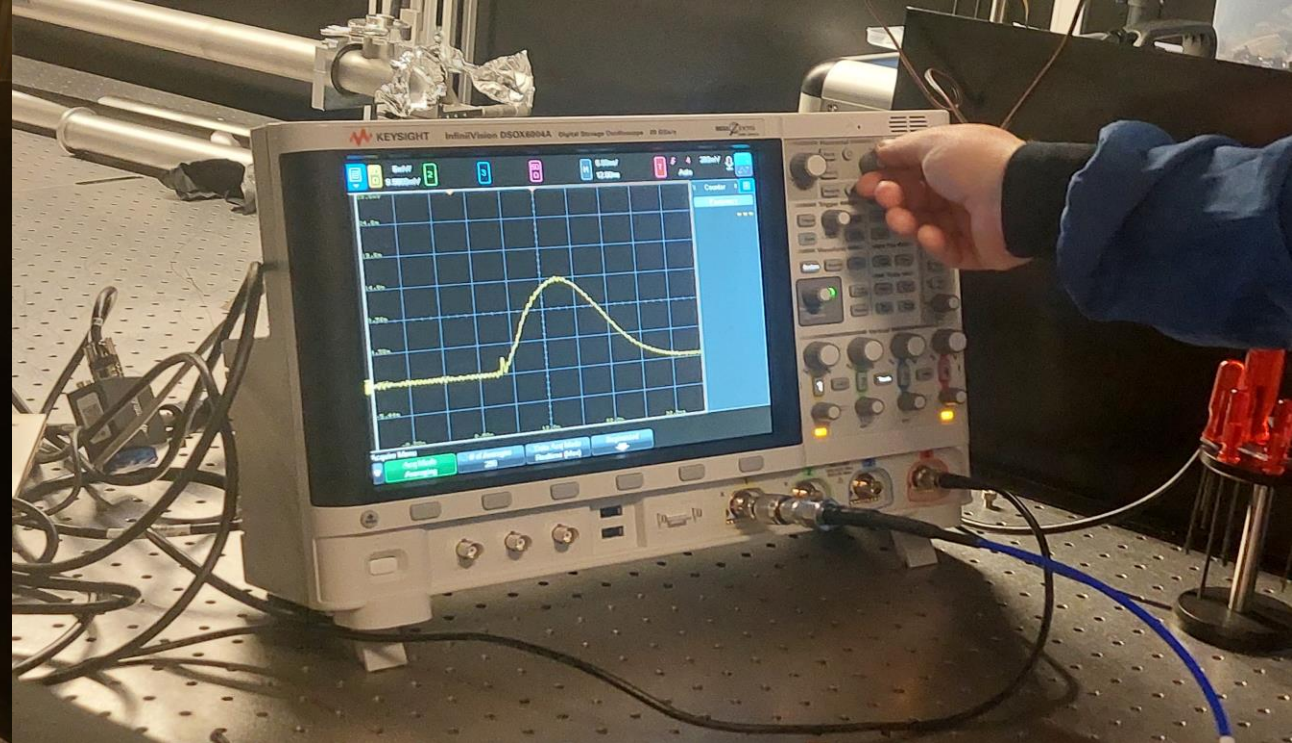
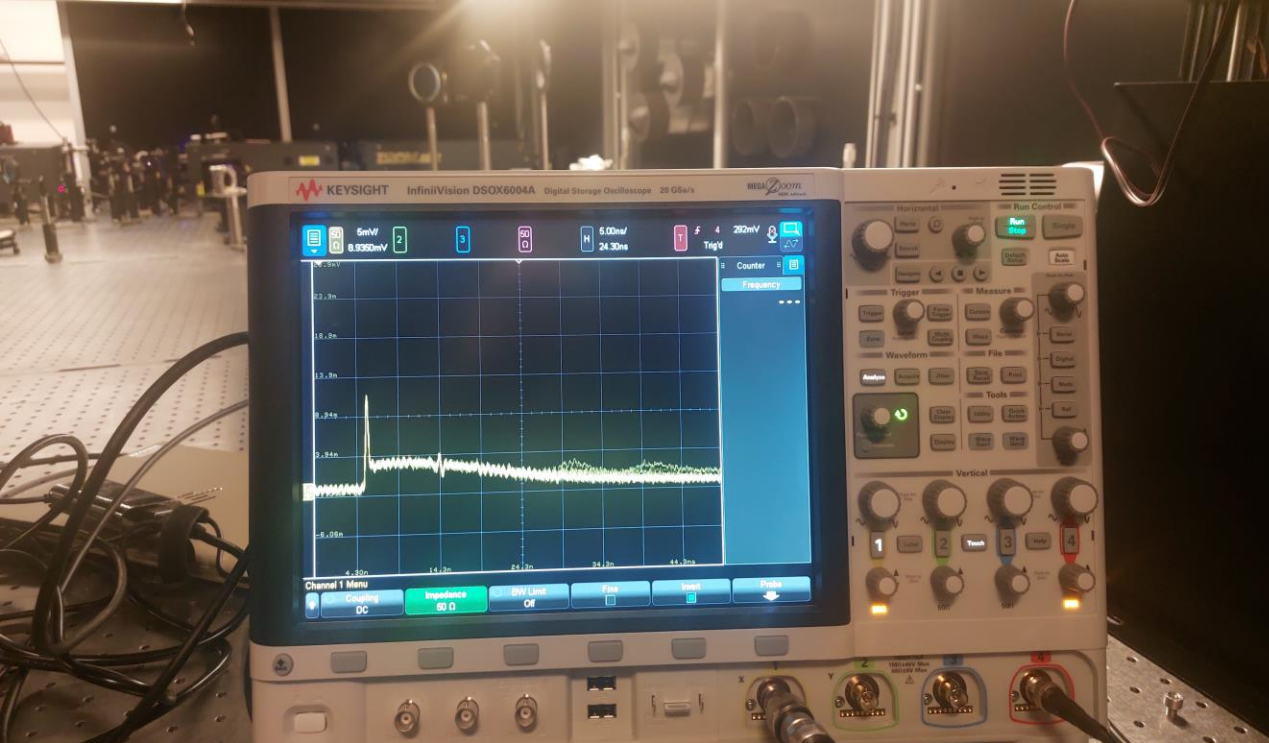


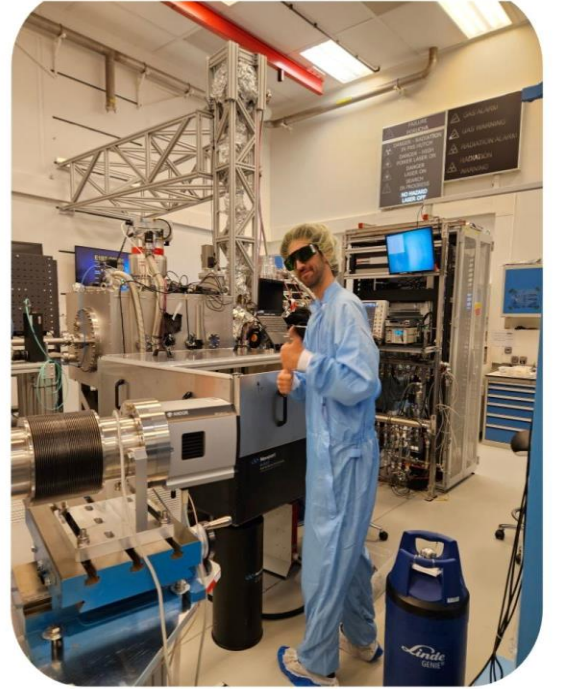
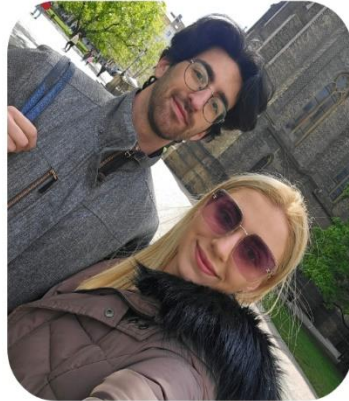
MJERENJA



OBRADA PODATAKA







2. NEDJELJA EKSPERIMENTA PLANIRANA
ZA MAJ!

WE WILL KEEP YOU INFORMED 😊