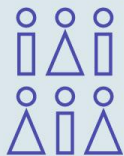




Our vision:

Regionally based and internationally competitive





18.000

STUDENTS



42

BACHELOR
PROGRAMMES



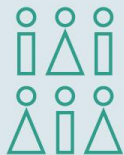
44

MASTER
PROGRAMMES



8

PHD
PROGRAMMES



1.800

EMPLOYEES

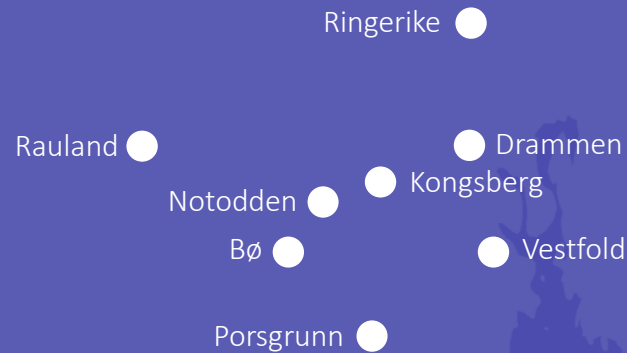


8

CAMPUSES

BØ – DRAMMEN – KONGSBERG
NOTODDEN – PORSGRUNN
RAULAND – RINGERIKE – VESTFOLD

Close to people, the labour market and social developments



Organisation



**USN rector,
Petter Aasen**

The Faculty of Health and
Social Sciences

The Faculty of Humanities, Sports
and Educational Science

The USN School of Business

The Faculty of Technology, Natural
Sciences and Maritime Sciences



CAMPUS BØ



CAMPUS VESTFOLD



CAMPUS KONGSBERG



CAMPUS PORSGRUNN

Faculty of Technology, Natural Sciences and Maritime Sciences

Departments

- Natural Sciences and Environmental Health - Bø
- Electrical Engineering, IT and Cybernetics - Porsgrunn
- Process, Energy and Environmental Technology - Porsgrunn
- Maritime Operations - Vestfold
- Microsystems - Vestfold
- Science and Industry Systems - Kongsberg

BSc, MSc and PhD programmes

Close collaboration with industry and research institutions

Forskningsgrupper, Institutt for mikrosystemer

Autonomi (7 medlemmer)

- Digitalisering
- Brukergrensesnitt
- Kontrollromteknologi for overvåking
- Robot'er og droner
- Maritime autonome systemer
- Simulatorer for trening og utvikling



[AutoDrone](#)

BioMEMS (4 medlemmer)

- Biologiske systemer koblet med elektronikk
- Terapi og medisinerings
- Biosensorer
- Medisinsk diagnostikk
- Fotosensitive proteiner



[The Photosense Project](#)

Materialer og mikrointegrasjon (13 medlemmer)

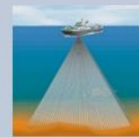
- Pakketeknologi og systemintegrasjon for mikroelektronikk og medisinske komponenter
- Bonding i krevende miljø
- Fabrikasjonsprosesser for ultralydtransdusere
- Nanomaterialer i mikroelektronikk
- Måling- og karakteristikk



[Implantable
Interface for
Neuroprosthesis](#)

Mikro- og nanomekaniske systemer (11 medlemmer)

- Elektroniske sensorer og aktuatorer
- Mikro energihøstere og energilagringssystemer
- Pezoelektriske komponenter
- Ultralydteknologi
- RF akustiske sensorer
- MEMS mikrofoner
- Bio-elektrokjemi
- Laser og optikk



[Ultrasound transducers](#)

Sikre distribuerte systemer (10 medlemmer)

- Big Data
- Cloud Computing
- Cyber Security
- Høyhastighets datainnsamling
- Innbruddsdeteksjon
- Kunstig intelligens (AI) og Maskinlæring
- Optimering
- Tingenes internett (IoT)



[Pixel Tracker, CERN](#)

PhD in Applied Micro and Nano Systems

The PhD-programme focus on applied research within:

- Micro optics (MOEMS)
- Sensor technology
- Miniaturized Energy sources
- RF MEMS
- BioMEMS
- Fabrication, Integration and Packaging Technology

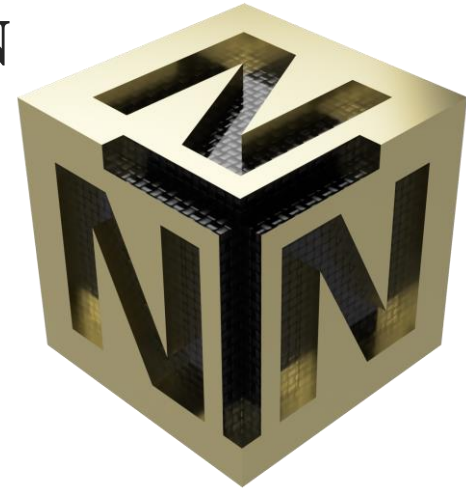


Currently ~25 students enrolled in the programme

Forskerskole i mikro- og nanoteknologi: TNNN

PhD studenter, postdocs og veiledere
innen mikro- og nanoteknologi, fra

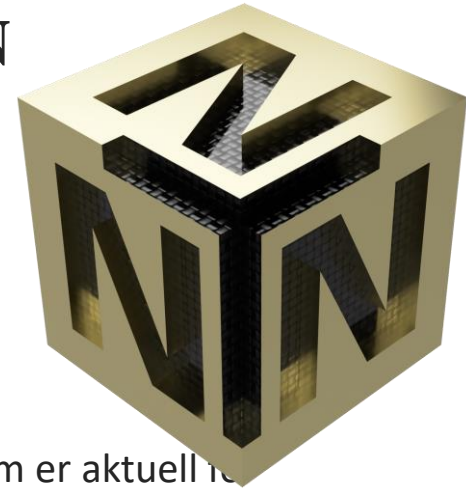
- NTNU
- USN
- Universitetet i Oslo
- Universitetet i Bergen
- Universitetet i Tromsø
- <https://www.ntnu.edu/tnnn/>
- <https://www.ntnu.edu/documents/1314103550/0/TNNN+newsletter+v2.pdf/40794049-b251-17ef-923e-7b212dc6bf18?t=1680534941243>



Forskerskole i mikro- og nanoteknologi: TNNN

Årlig konferanse

- Trondheim 2022
- USN, Vestfold 2023: 21.-23. juni
 - Bidrag fra industrien:
 - Workshop: Opp til to timer, f.eks. å definere en problemstilling (som er aktuell i dere), til brain-storming og diskusjon. <https://www.ntnu.edu/web/tnnn/tnnn-conference-workshops>
 - Utstilling under poster-sesjon
 - Foredrag i plenum (Z&P, GEVU, KSE, ??)
 - Bedriftsbesøk fredag ettermiddag (Z&P / PoLight / Techni, + ???)



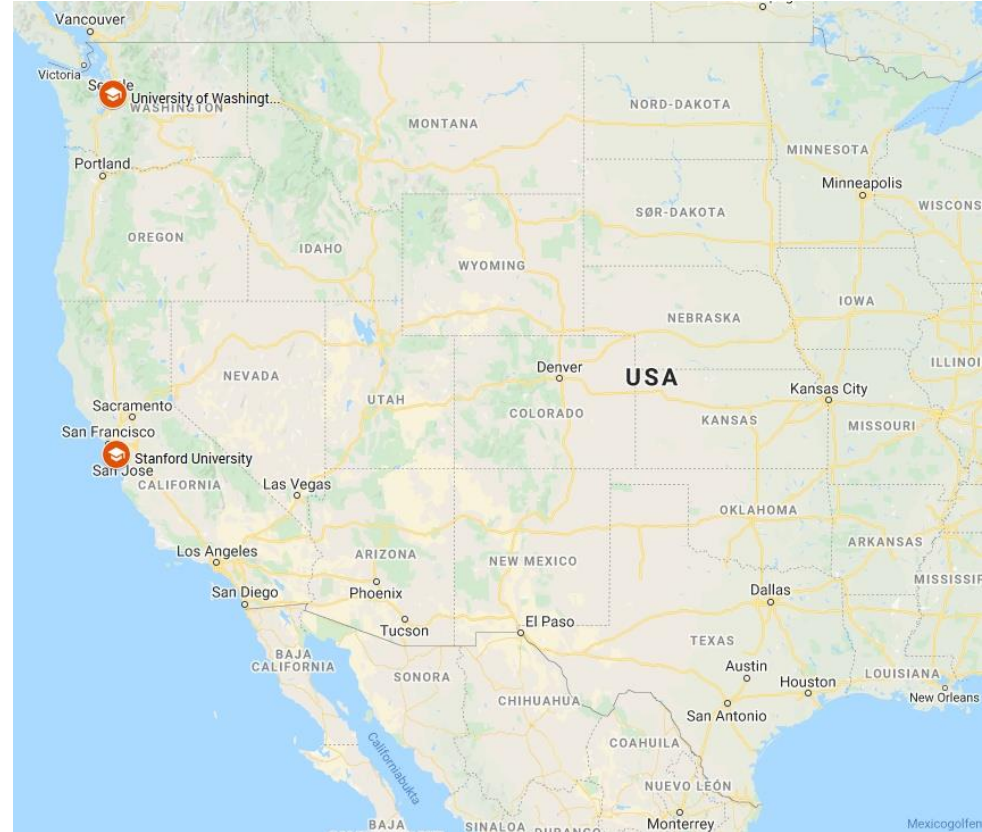
INTPART

Centre for Optical and Acoustical Sensor Technology

Søknad sendt 25. sept 2019
Innvilget av NFR 3. april 2020

Formål	Utteksle studenter og ansatte
Tidsramme	2020-2023
Budsjett	4,5 mill NOK (3,45 mill fra NFR)

- 1) **USN, Horten, Norway**
Institutt for mikrosystemer
- 2) **University of Washington, Seattle, Wa**
Applied Physics Laboratories (APL)
Center for Industrial and Medical Ultrasound (CIMU)
- 3) **Stanford University, Palo Alto, Ca**
Stanford Microphotonics Laboratory (SML)



Partnerne våre

Applied Physics Laboratory, University of Washington (APL-UW)

og

Stanford Microphotronics Laboratory (SML)

UNIVERSITY of WASHINGTON
Applied Physics Laboratory
Research

People

Education

Departments

Our Departments

APL-UW is organized into eight scientific and technical departments. The ability to turn ideas and hypotheses into experiments, field programs, and new instrumentation relies on the composite expertise of many science and engineering disciplines. The Laboratory owes its success to the synergy created by investigators and technicians working across these departments and their commitment to basic and applied research.

Acoustics

The Acoustics Department studies the propagation and scattering of sound in the ocean. Historically, its primary focus was to study the ocean and ocean structures using theory, numerical modeling, and field experiments; current research is expanding to areas of non-ocean acoustics.

Center for Industrial & Medical Ultrasound

The Center is a world-class leader in ultrasound research and development. Its talented, multidisciplinary staff of physicists, mathematicians, engineers, technicians, and students works with a wide variety of researchers and medical professionals around the world to advance the expansion of the field.

Ocean Engineering

APL-UW ocean engineers have a half century reputation for delivering science and technology expertise at sea. The department serves as a resource to scientists at APL-UW, the University of Washington, other research and development organizations, and the U.S. Navy.

Ocean Physics

OPD investigators pursue research focused primarily on small-scale and meso-scale oceanographic processes, design and build unique instruments to facilitate these studies, and educate graduate and undergraduate students through instruction and employment.

Polar Science Center

The Polar Science Center is a group of dedicated investigators conducting interdisciplinary research on the oceanography, climatology, meteorology, biology, and ecology of the ice-covered regions on Earth and elsewhere in the solar system.

Electronic & Photonic Systems

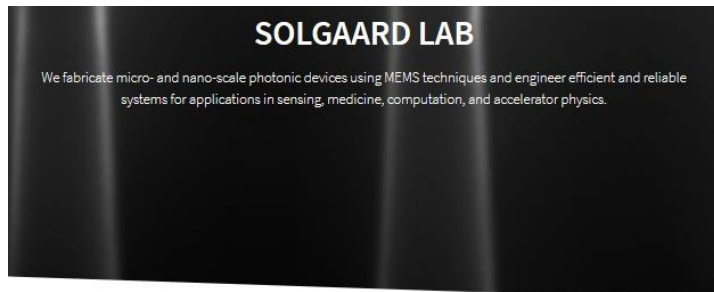
The department develops and builds state-of-the-art solutions for challenging problems faced by the U.S. Navy, provides engineering solutions for the installation and support of cabled ocean observatories, and explores the applications of photonics.

Environmental & Information Systems

The EIS Department has three core research areas: acoustics and signal processing, environmental sensing and modeling, and information and control systems. Expertise is applied to the needs of the Department of Defense, other federal agencies, and industry.

Air-Sea Interaction & Remote Sensing

The AIRS Department is a diverse group of scientists, engineers, technicians, and students that conducts research on the air-sea interface using a variety of remote sensing techniques. Interests range from global scale climate change and ocean circulation to the smallest scales of the physics of air-sea heat and gas exchange.



Current Research

Photonic Computing

We are fabricating tunable photonic devices to perform and learn arbitrary linear operations using light. Applications for such devices include energy-efficient machine learning and mode unscrambling. (Photo credit: Ben Bartlett)

[learn more](#)

LIDAR

We are currently working on far field beam scanning and patterning using MEMS linear phased arrays for remote sensing applications.

[learn more](#)

Lightsheet Microscopy

We apply phased array techniques to light sheet microscopy. By applying these techniques, we can improve background rejection in images of scattering specimens.

[learn more](#)

Accelerator-on-a-Chip (ACHIP)

We design and fabricate miniaturized electron accelerators using MEMS and thin-film processing techniques to increase achievable acceleration gradients.

Photonic Crystal Sensors

We utilize the attributes of photonic crystals to create fiber-coupled sensors for mechanical measurements like pressure, acceleration, and displacement.

Photonic Lab-on-Chip

We are planning development of photonic platforms for applications for immunology.



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