

CURRICULUM VITAE, BJARNE STUGU

Address: Våkleivåsen 12, N-5155 Bønes,
Nationality: Norwegian.
Date of Birth: 23. April 1956.
Marital Status: Married.

Education:

1987: Dr. Scient. Department of Physics, University of Oslo.
1983: Cand. Scient. Department of Physics, University of Oslo.
1976: International Baccalaureate, International school of Geneva.

Employment history:

1999-present: Professor, Department for Physics and Technology (IFT), University of Bergen (UiB), Norway
2015-2016: Sabbatical year at CERN.
2004-2005: Sabbatical year at CERN.
1992-1999: Associate professor, IFT, University of Bergen, Norway
1990-1992: Guest scientist, KFA-Jülich, Germany
1986-1990: Scientific Assistant, Department of Physics, University of Oslo.
1985-1986: Doctoral stipend from Norw. Research council.
1980-1981: Military Service.

Administrative Experience:

2017-present: NORLHC, NFR infrastructure project: Co-coordinator WP2 ATLAS Upgrade
2012-2016: Norwegian delegate to EU-COST action TD1205 (“SYRA3 Innovative methods in radiotherapy and radiosurgery using synchrotron radiation”)
2010-2015: Leader of Subatomic physics group, IFT, UiB.
2008-2015: Leader of board for physics teaching, IFT (member since 2003)
2005-2010: Deputy department head, IFT, UiB.
2005-2010: Member of “Norsk Fysikkråd (National board for physics)”
2000-2005: Project leader, NFR project: “The Norwegian ATLAS Construction project”.
1995-present: ATLAS collaboration board representative from Bergen.
1999-2003: Leader of Subatomic physics section, IFT, UiB
1993-1998: Norwegian delegate to restricted ECFA (European Committee for future accelerators)

Teaching and supervision:

Supervision:

22 completed Cand. Scient/Masters degrees.

5 completed PhD degrees.

Teaching:

Quantum Mechanics, Electromagnetism, Experimental physics, Modern physics.

Thesis evaluations:

Opponent at 4 doctoral disputations.

External evaluator (grading) of well above 20 Cand. Scient./MSc. theses

Research experience:

Particle physics experimental activities:

CERN/R704 (1981-1987, Charmonium formation in antiproton-proton annihilation at the ISR): Construction of a Lead Glass calorimeter (Cand. Scient (MSc) degree).

Software maintenance. Participation in data collection. Physics analysis for the Dr. Scient. (PhD) degree (Search for the singlet p-state, angular distributions of chi decays, elastic antiproton-proton scattering)

CERN/PS202 (1987-1992, phi-phi formation in antiproton proton annihilation at LEAR): Simulation studies for the detector design. Development of detector description, event reconstruction, and simulation software. Participation in the construction of a silicon pad detector, the running of the experiment and quality checking of the data. Supervision of students.

CERN/LEP-DELPHI (1992-~2001): Studies of tau lepton properties and tau polarisation in LEP-1 data, Studies connected to the construction of the STIC-calorimeter. Participation in running DELPHI and the STIC. Supervision of students.

SLAC/BaBar (1995-present): Some involvement in development and running of the CsI calorimeter, shift taking and informal discussions with the students of the group.

CERN/LHC-ATLAS (1995-present): Development/testing of radiation hard silicon detectors, Production of detector modules for the SCT (Quality assurance and testing of naked detectors and of completed modules). Project leader for the Norwegian contributions. Supervision of students taking part in SCT work and performing physics studies. Current analysis interest is within Higgs properties in the $\tau^+ \tau^-$ decay channel, and study of the $\tau^+ \tau^-$ system in general.

ATLAS Upgrade: Member of the ITk- collaboration, Participation in the development, production and testing of pixel sensors and modules. Member of the RD53 collaboration

Other research:

3DMiMiC (2012-2018): This project, led by SINTEF, was for the development and testing of silicon microstrip and "3D" detectors for applications within X-ray microbeam monitoring and dosimetry.

Publications:

Stugu co-authors long lists of refereed publications from ATLAS, BaBar DELPHI, the 5 PS-202 and the 9 R704 publications, with significant contributions to publications within areas detailed above. Below is a selection of publications, notes and written contributions **NOT** belonging to the above mentioned lists.

- A.L.Heggelund et al.: "Radiation hard 3D silicon pixel sensors for use in the ATLAS detector at the HL-HLC." JINST 17 P08003 (2022)
- S. Terzo et al: "Novel 3D Pixel Sensors for the Upgrade of the ATLAS Inner Tracker" Front.Phys., 21. Apr. 2021, doi: 10.3389/fphy.2021.624668.
- O. Dorholt et al: "Beam tests of silicon pixel 3D-sensors developed at SINTEF." JINST 13 (2018) P08020
- B.Stugu on behalf of ATLAS: "Measurements of Cross Sections and Couplings of the Higgs Boson Using the ATLAS detector". HEPFT2017, 5-7 July Protvino Russia, ATL-PHYS-PROC-2017-261
- E. Alagoz et al: (3DMiMiC coll.) "Multi-strip silicon sensors for beam array monitoring in micro-beam radiation therapy." Physica Medica 32 (2016) 1795.
- E. Bräuer-Krich et al: "Medical Physics aspects of the Synchrotron Radiation Therapies: Microbeam Radiation Therapy (MRT) and Synchrotron Stereotactic Radio Therapy (SSRT)" Physica Medica 31 (2015) 568.
- M.Povoli et al. (3DMiMiC collaboration): "Thin silicon strip detectors for beam monitoring in Micro-beam Radiation Therapy". JINST 10 (2015) P11007.
- P.L. Rosendahl, T. Burgess and B. Stugu: "A method to Estimate the Boson Mass and to Optimise Sensitivity to Helicity correlations of tau+ tau- Final States". JHEP01 (2012) 043. (arXiv:1105.6003v2 [hep-ex].)
- ATLAS 3D Collaboration (P. Grenier et al) "Test Beam Results of 3D Silicon Pixel Sensors for the ATLAS upgrade". NIM A638:33-40, 2011.
- K. Helle et al: "Testbeam studies of 3D silicon detectors". ATL-UPGRADE-INT-2010-001 (internal note confirming public results)
- A. Ahmad et. al.: "The silicon microstrip sensors of the ATLAS semiconductor tracker" Nucl. Instrum. Meth. A 578 (2007) 98-118
- Abdessalam et al.: "The barrel modules of the ATLAS semiconductor tracker". Nucl. Instrum. Meth. A 568 (2006) 642-671
- L.G. Johansen et al.: "Production of ATLAS silicon detector modules: Report from the Scandinavian cluster" ATL-INDET-PUB-2006-003.
- F. Campabadal et al.: "Beam tests of ATLAS SCT silicon strip detector modules" Nucl. Instrum. Meth. A 538 (2005) 384-407
- B. Mohn and B. Stugu: "Corrections to the discovery potential for finding the Standard Model Higgs in the 4 lepton final state" ATL-PHYS-2004-014.
- L.G.Johansen et al.: «Radiation Studies of Silicon-Microstrip Detectors for Use in ATLAS and SCT" IEEE Trans. Nucl. Sci. 46 (2002) 2919.
- T. Kondo et al: "Construction and performance of the ATLAS silicon barrel modules" NIM A 485 (2002) 27.
- B. Stugu: "Some studies of the tau lepton with data from the DELPHI detector", Talk at the 7th. Int. Symp. on Particles, Strings and Cosmology. World Scientific: Proceedings of PASCOS-99 (2000) 516.
- S.J. Alvsvaag et al.: (DELPHI STIC Collaboration): "The small angle tile calorimeter in the DELPHI experiment". NIM A 425, 106(1999).
- B. Stugu: "Summary on tau leptonic branching ratios and universality", Invited talk at the 5th. Int. Workshop on tau lepton physics, Nucl. Phys B (Proc. Supp.)76(1999)123.
- B. Stugu: "Upper limits on the branching ratios tau to mu gamma and tau to e gamma using data from DELPHI", Invited talk at the 3rd. Int. Workshop on tau lepton physics, Nucl. Phys B (Proc. Supp.)40(1995)289