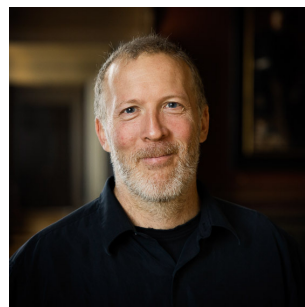


Born on 22/12/1973, in Belfort (France)

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Academic degrees:

2020	Professor appointment , Uppsala University.
2007	Docent appointment , Uppsala University.
1999	PhD degree , Université Joseph Fourier, in Grenoble: <i>Electromagnetic calorimetry and search for right-handed Majorana neutrinos in the ATLAS experiment.</i>

Employment record:

Since 2020	Professor , Uppsala University. ▷ Responsible for the high-energy physics research program (since 2022); ▷ Responsible for PhD education in high-energy physics (2020-2023).
2011-2020	Associate professor , Uppsala University.
2001-2011	Researcher , Uppsala University.
1999-2001	Post-doctoral position , CERN, Geneva.

Research activities:

▷ Since 2008, research with the ATLAS experiment at the Large Hadron Collider (LHC):

- Leader of the physics working group dedicated to Higgs and DiBoson Searches (HDBS), from April 2021 to September 2023. As such, I was responsible for the coordination and review of ~ 50 ATLAS searches for Higgs boson pairs, new charged and neutral Higgs bosons, exotic decays of the 125 GeV Higgs boson and heavy diboson resonances.
- Validation of HEPData for HDBS, from August 2019 to March 2021 and in 2024.
- Member of the Publication Committee, from March 2019 to February 2021.
- Leader of the task force for the estimation of backgrounds coming from quark- and gluon-initiated jets misidentified as hadronic τ signatures, from November 2017 to October 2019.
- Searches for Higgs boson pair production (HH) with Run-2 and Run-3 data:
 - ATLAS convener in the HH sub-group of the LHC Higgs Working Group in 2019-2020, which serves as an interface between LHC experimentalists and theorists working on HH production;
 - Coordinator of the HH -related activities in 2018, prior to the creation of a dedicated sub-group within HDBS;
 - Supervisor role in several searches for $HH \rightarrow b\bar{b}\tau\tau$ since 2017.

- Chair of two editorial boards for Run-2 data-analyses: searches for $HH \rightarrow bb\gamma\gamma$ and for exotic Higgs boson decays $H \rightarrow 2a \rightarrow 4b$.
- Member of the Speakers Committee Advisory Board, from March 2016 to February 2018 (chair during one year).
- Leader of the HBSM sub-group, from April 2016 to March 2017. As such, I was responsible for the supervision and review of ~ 20 ATLAS searches for Higgs boson pairs, new charged and neutral Higgs bosons, as well as exotic decays of the 125 GeV Higgs boson.
- Searches for charged Higgs bosons (H^\pm) in top-quark decays and in top-quark associated production modes with Run-1 data:
 - Coordinator of H^\pm -related activities from October 2013 to April 2015;
 - Leading role in several data-analyses to search for $H^\pm \rightarrow \tau\nu$ in 2011-2013.
- Member of the Speakers Committee, from November 2012 to September 2015 (chair during six months).
- Member of two editorial boards for Run-1 data-analyses: Standard Model Higgs boson searches in the $H \rightarrow \tau\tau$ and $ttH(bb)$ channels.

▷ Between 1999 and 2008, research on the Compact Linear Collider (CLIC) project:

- High-energy physics simulations:
 - Charged and neutral BSM Higgs bosons beyond the Standard Model;
 - Heavy Z' boson and right-handed Majorana neutrinos.
- Commissioning and operation of the CLIC Test Facility CTF3, as well as design of beam instrumentation.
- Beam dynamics simulation studies of the CLIC post-collision extraction line, injection and booster linacs.

Research grants:

2022-2025	Vetenskapsrådet – research project – 3.44 MSEK: <i>Searches for Higgs boson pairs in the ATLAS experiment at the LHC to probe physics in and beyond the Standard Model.</i>
2021-2022	Carl Tryggers Stiftelse – post-doctoral scholarship – 766 kSEK: <i>Statistical combination and interpretation of Higgs boson pair searches in ATLAS.</i>
2016-2019	Vetenskapsrådet – research project – 2.82 MSEK: <i>Hunting heavy Higgs bosons with heavy leptons in the ATLAS experiment at the LHC.</i>
2012-2014	Vetenskapsrådet – research project – 1.58 MSEK: <i>Search for charged Higgs bosons in top quark decays with the ATLAS experiment at the LHC.</i>
2001-2003	European Commission – Marie Curie Individual Fellowship – 150 kEUR.

Other major scientific merits:

<i>Since 2024</i>	Member of the International Advisory Committee of the <i>Higgs</i> conference series, chair of the organising committee of <i>Higgs 2024</i> in Uppsala.
<i>Since 2023</i>	Leadership positions in the EU "Comprehensive Multiboson Experiment-Theory Action" (COMETA). ▷ Coordinator of the working group "Management and Event Organisation". ▷ Member of the Grant Awarding Committee and the Management Committee.
<i>Since 2020</i>	Member of the European Committee for Future Accelerators (ECFA). ▷ Sweden's delegate in the Restricted ECFA (RECFA) since 2023.
<i>2021-2022</i>	Member of the organisation committee of the Higgs Pairs workshops: online in September 2021 and in Dubrovnik in May 2022.
<i>2020-2022</i>	Guest editor for the special issue of the journal Symmetry (MDPI) on "Recent advances in accelerator and particle physics".
<i>2019-2021</i>	Member of the CERN's PS and SPS Experiments Committee (SPSC), referee for the AWAKE, CAST, ENUBET, MADMAX, MUonE and VMB experiments.
<i>2016-2019</i>	Member of the board of the section for elementary and astro-particle physics of the Swedish Physical Society (chair in 2018-2019).
<i>2014-2018</i>	Chair of the organisation committee of the biennial workshop on <i>Prospects for Charged Higgs Discovery at Colliders</i> in Uppsala.
<i>2012-2014</i>	Sweden's delegate in the Advisory Committee of CERN Users (ACCU).
<i>2008-2009</i>	Seminar organiser at the Division of Nuclear and Particle Physics of Uppsala University.

Supervision of PhD students at Uppsala University:

<i>2023-2027</i>	Philipp Rincke [main supervisor].
<i>2020-2024</i>	Christina Dimitriadi - PhD defence in May 2024 [main supervisor].
<i>2016-2020</i>	Myrto Asimakopoulou – <i>Search for charged Higgs bosons with τ-lepton signatures at the ATLAS experiment of the Large Hadron Collider and development of novel semiconductor particle detectors</i> [co-supervisor].
<i>2016-2020</i>	Petar Bokan – <i>Pair production of Higgs bosons in the final state with bottom quarks and τ leptons in the ATLAS experiment</i> [main supervisor].
<i>2015-2019</i>	Mikael Mårtensson – <i>A search for leptoquarks with the ATLAS detector and hardware tracking at the High-Luminosity LHC</i> [co-supervisor].
<i>2015-2019</i>	Max Isacson – <i>Exploration of extended Higgs sectors, development of a displaced track trigger, and improvements in GRID middleware</i> [co-supervisor].
<i>2011-2016</i>	Henrik Öhman – <i>Searches for Higgs bosons with hadronically decaying τ-leptons using grid and cloud computing techniques</i> [main supervisor].
<i>2011-2015</i>	Alexander Madsen – <i>Hunting the charged Higgs boson with lepton signatures in the ATLAS experiment</i> [main supervisor].
<i>2010-2015</i>	Daniel Pelikan – <i>Searches for a charged Higgs boson in ATLAS and development of novel technology for future particle detector systems</i> [co-supervisor].

Supervision of post-doctoral researchers at Uppsala University:

2021-2023	Serhat Örddek – <i>HH</i> combinations and EFT interpretations in ATLAS.
2016-2018	Pedro Sales de Bruin – <i>HH</i> searches in ATLAS.
2014-2016	Camila Rangel Smith – Charged Higgs boson searches in ATLAS.

Teaching and outreach:

- ▷ Lecturer at the HASCO Summer School in Göttingen, in 2017-2018.
- ▷ Organiser of the *International Masterclasses* in Uppsala, from 2016 to 2019.
- ▷ Lectures in the course *Advanced Particle Physics* (master level) in Uppsala, from 2013 to 2018.
- ▷ Lectures and tutorials in various mechanics courses (undergraduate level) in Uppsala since 2008.
- ▷ Tutorials in longitudinal and transverse beam dynamics at the Joint Universities Accelerator School (JUAS) in Archamps, from 2003 to 2005.

Selected publications:

Foreword: The publication policy of the ATLAS Collaboration is such that any output in terms of physics results is signed by *all* qualified ATLAS authors (currently about 3000) and is subject to rigorous internal review before results are made public. ATLAS also regularly releases official results in the form of CONF and PUB notes, respectively based on data-analysis and simulation, with the same authorship policy as for journal articles. My h-index according to INSPIRE-HEP is ~ 190 . For practical reasons, only my most relevant publications are listed here, however all ATLAS papers that I have signed (about 1,200) can be found by a search via:

<https://inspirehep.net/literature?q=find%20Arnaud%20Ferrari%20and%20cn%20atlas>

▷ A. Publications based on ATLAS Run-2 data-analyses:

- A01 ATLAS Collaboration, *Search for the non-resonant production of Higgs boson pairs via gluon fusion and vector-boson fusion in the $b\bar{b}\tau\tau$ final state in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector*, ATLAS-CONF-2023-071 [\[link\]](#).
- A02 ATLAS Collaboration, *Constraints on the Higgs boson self-coupling from single- and double-Higgs production with the ATLAS detector using pp collisions at $\sqrt{s} = 13$ TeV*, Phys. Lett. B843 (2023) 137745 [\[link\]](#).
- A03 ATLAS Collaboration, *HEFT interpretations of Higgs boson pair searches in $b\bar{b}\gamma\gamma$ and $b\bar{b}\tau\tau$ final states and of their combination in ATLAS*, ATL-PHYS-PUB-2022-019 [\[link\]](#).
- A04 ATLAS Collaboration, *Projected sensitivity of Higgs boson pair production combining the $b\bar{b}\gamma\gamma$ and $b\bar{b}\tau\tau$ final states with the ATLAS detector at the HL-LHC*, ATL-PHYS-PUB-2022-005 [\[link\]](#).
- A05 A. Ferrari, N. Rompotis, *Exploration of extended Higgs sectors with Run-2 proton-proton collision data at the LHC*, Symmetry 13 (2021) 2144 [\[link\]](#),[\[erratum\]](#).

- A06 ATLAS Collaboration, *Reconstruction and identification of boosted di- τ systems in a search for Higgs boson pairs using 13 TeV proton-proton collision data in ATLAS*, JHEP11 (2020) 163 [\[link\]](#).
- A07 ATLAS Collaboration, *Combination of searches for Higgs boson pairs in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS experiment*, Phys. Lett. B800 (2020) 135103 [\[link\]](#).
- A08 ATLAS Collaboration, *Measurement prospects of the pair production and self-coupling of the Higgs boson with the ATLAS experiment at the HL-LHC*, ATL-PHYS-PUB-2018-053 [\[link\]](#).
- A09 ATLAS Collaboration, *Search for resonant and nonresonant Higgs boson pair production in the $b\bar{b}\tau\tau$ decay channel in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector*, Phys. Rev. Lett. 121 (2018) 191801 [\[link\]](#),[\[erratum\]](#).
- A10 ATLAS Collaboration, *Search for charged Higgs bosons decaying via $H^+ \rightarrow \tau\nu$ in the τ +jets and τ +lepton final states with 36/fb of pp collision data recorded at $\sqrt{s} = 13$ TeV with the ATLAS experiment*, JHEP09 (2018) 139 [\[link\]](#).
- A11 ATLAS Collaboration, *Search for charged Higgs bosons produced in association with a top quark and decaying via $H^+ \rightarrow \tau\nu$ using pp collision data recorded at $\sqrt{s} = 13$ TeV by the ATLAS detector*, Phys. Lett. B759 (2016) 555 [\[link\]](#).

▷ B. Publications based on ATLAS Run-1 data-analyses:

- B01 ATLAS Collaboration, *Search for charged Higgs bosons in the $H^+ \rightarrow tb$ decay channel in pp collisions at $\sqrt{s} = 8$ TeV using the ATLAS detector*, JHEP03 (2016) 127 [\[link\]](#).
- B02 ATLAS Collaboration, *Search for charged Higgs bosons decaying via $H^+ \rightarrow \tau\nu$ in fully hadronic final states using pp collision data at $\sqrt{s} = 8$ TeV with the ATLAS detector*, JHEP03 (2015) 088 [\[link\]](#).
- B03 ATLAS Collaboration, *Search for charged Higgs bosons through the violation of lepton universality in $t\bar{t}$ events using pp collision data at $\sqrt{s} = 7$ TeV with the ATLAS experiment*, JHEP03 (2013) 076 [\[link\]](#).
- B04 ATLAS Collaboration, *Search for charged Higgs bosons decaying via $H^+ \rightarrow \tau\nu$ in $t\bar{t}$ events using pp collision data at $\sqrt{s} = 7$ TeV with the ATLAS detector*, JHEP06 (2012) 039 [\[link\]](#).

▷ C. High-energy physics phenomenology and simulations:

- C01 L. Alasfar, L. Cadamuro, C. Dimitriadis, A. Ferrari, R. Gröber, G. Heinrich, T. Ingebrechtsen Carlson, J. Lang, S. Ördet, L. Pereira Sanchez, L. Scyboz, J. Sjölin, *Effective Field Theory descriptions of Higgs boson pair production*, arXiv:2304.01968 [hep-ph] [\[link\]](#).
- C02 E. Coniavitis, A. Ferrari, *Pair production of heavy MSSM charged and neutral Higgs bosons in multi-TeV e^+e^- collisions at the Compact Linear Collider*, Phys. Rev. D75 (2007) 015004 [\[link\]](#).

C03 A. Ferrari, *Study of the production of a new Z' boson and its decay into Majorana neutrinos in pp collisions at $\sqrt{s} = 14$ TeV and in e^+e^- collisions at $\sqrt{s} = 3$ TeV*, Phys. Rev. D65 (2002) 093008 [[link](#)].

C04 A. Ferrari, J. Collot, M.L. Andrieux, B. Belhorma, P. de Saintignon, J.Y. Hostachy, P. Martin, M. Wielers, *Sensitivity study for new gauge bosons and right-handed Majorana neutrinos in pp collisions at $\sqrt{s} = 14$ TeV*, Phys. Rev. D62 (2000) 013001 [[link](#)].

▷ D. Accelerator physics and beam instrumentation at CLIC/CTF3:

D01 A.E. Dabrowski, S. Bettoni, E. Bravin, R. Corsini, S. Döbert, D. Egger, A. Ferrari, T. Lefevre, A. Rabiller, L. Soby, P.K. Skowronski, F. Tecker, C.P. Welsch, *Measuring the bunch frequency multiplication at the 3rd CLIC Test Facility*, JINST 7 (2012) P01005 [[link](#)].

D02 R.B. Appleby, A. Ferrari, M.D. Salt, V. Ziemann, *Conceptual design of a beam line for post-collision extraction and diagnostics at the multi-TeV Compact Linear Collider*, Phys. Rev. ST Accel. Beams 12 (2009) 021001 [[link](#)].

D03 A. Ferrari, A. Latina, L. Rinolfi, *Design study of the CLIC Injector and Booster Linacs with the 2007 beam parameters*, CLIC note 737 [[link](#)].

D04 R. Corsini, A. Ferrari, L. Rinolfi, P. Royer, F. Tecker, *Experimental results on electron beam combination and bunch frequency multiplication*, Phys. Rev. ST Accel. Beams 7 (2004) 040101 [[link](#)].

D05 F. Caspers, R. Corsini, A. Ferrari, L. Rinolfi, P. Royer, A. Rydberg, F. Tecker, *Development of a bunch frequency monitor for the preliminary phase of the CLIC Test Facility CTF3*, CLIC note 587 [[link](#)].

▷ E. Detector development in the ATLAS experiment:

E01 M.L. Andrieux, B. Belhorma, A. Belymam, D. Benchekroun, R. Cherkaoui, C. Clément, J. Collot, P. de Saintignon, C. Driouichi, D. Dzahini, Y. El Mouahhidi, H. Erridi, A. Ferrari, H. Ghazlane, J.Y. Hostachy, A. Hoummada, A. Idrissi, G. Laborie, B. Lund-Jensen, P. Martin, J.F. Muraz, J. Söderqvist, *Construction and test of the first two sectors of the ATLAS barrel liquid argon presampler*, Nucl. Instr. and Meth. A479 (2002) 316 [[link](#)].

E02 A. Ferrari, *A study of the ATLAS barrel presampler performance*, ATL-LARG-99-016 [[link](#)].

E03 C. Clément, A. Ferrari, *A study of the barrel presampler in the 1997 testbeam at CERN*, ATL-LARG-99-015 [[link](#)].