

Welcome to

VERTEX
2023



32nd International Workshop on Vertex Detectors

A very long story of workshops around the world dedicated to tracking systems in HEP and other fields.

The Genova group is extremely happy and honored to host the 32nd edition here in Sestri Levante!

2023 Sestri Levante, Italy

- 2022 Tateyma Resort Hotel, Japan
- 2021 virtual, Oxford/UK
- 2020 virtual, Tsukuba/Japan
- 2019 Lopud Island, Croatia
- 2018 Chennai, India
- 2017 Asturias, Spain
- 2016 Isola d'Elba, Italy
- 2015 Santa Fe, New Mexico, USA
- 2014 Mácha Lake, Doksy, Czech Republic
- 2013 Lake Starnberg, Germany
- 2012 Jeju, Korea
- 2011 Rust, Austria
- 2010 Loch Lomond, Scotland, UK
- 2009 Mooi Veluwe, Putten, The Netherlands
- 2008 Uto Island, Sweden
- 2007 Lake Placid, New York, USA
- 2006 Perugia, Italy
- 2005 Chuzenji Lake, Nikko, Japan
- 2004 Menaggio Como, Italy
- 2003 Low Wood, Lake Windermere, Cumbria, UK
- 2002 Kailua-Kona Hawaii, USA
- 2001 Brunnen, Switzerland
- 2000 Sleeping Bear Dunes, Lake Michigan, USA
- 1999 Texel, The Netherlands
- 1998 Santorini, Greece
- 1997 Mangaratiba, Rio de Janeiro, Brazil
- 1996 Chia, Sardinia, Italy
- 1995 Ein Gedi, Dead Sea, Israel
- 1994 Lake Monroe, Indiana, USA
- 1993 Lake Bohinj, Slovenia
- 1992 Basto Island, Finland



Genova in tracking - Roots

- The “tracking” story for us start in late 80s with the WA82 and WA92 at Omega area at CERN.

“electronic bubble chamber” of microstrips + vertex detector + trigger on secondary tracks implemented in a custom hw processor.

THE WA82 SETUP AT THE Ω' SPECTROMETER (CERN)

$\odot |B| = 1.8 \text{ Tesla}$

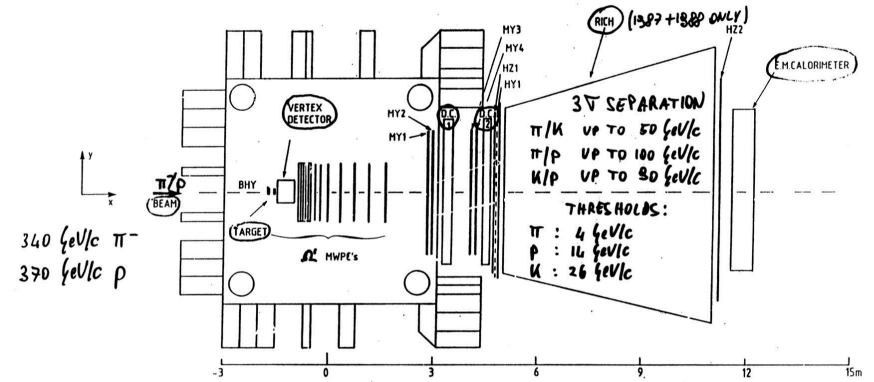
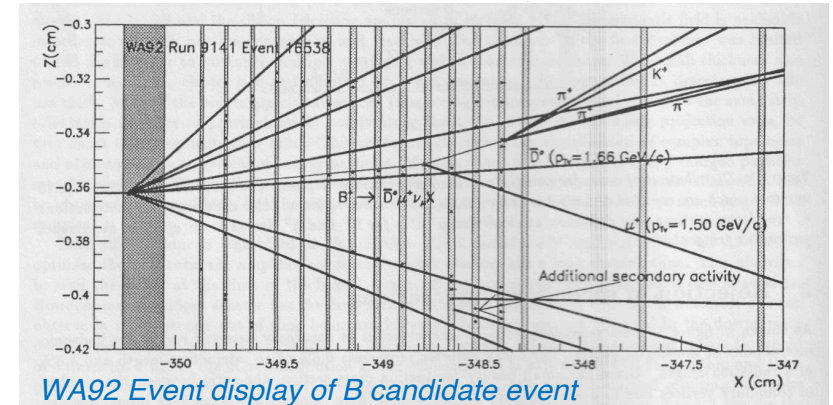


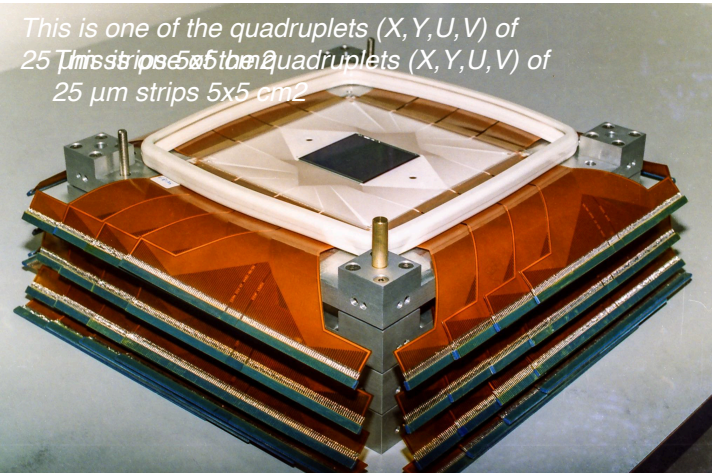
Fig. 1



WA92 Event display of B candidate event

Figure 2: Display of an event reconstructed in the decay detector where the decay chain $B^+ \rightarrow \bar{D}^0 \mu^+ \nu_\mu X$ is clearly visible, together with additional secondary activity (two tracks not pointing to the primary vertex). Both the \bar{D}^0 and the μ^+ have a large transverse momentum relative to the line of flight p_{Tv} . The hits left by the B^+ meson itself are visible in 5 layers of the decay detector (the B^+ and \bar{D}^0 lines of flight are shown as thin lines).

This is one of the quadruplets (X,Y,U,V) of 25 μm strips $5 \times 5 \text{ cm}^2$

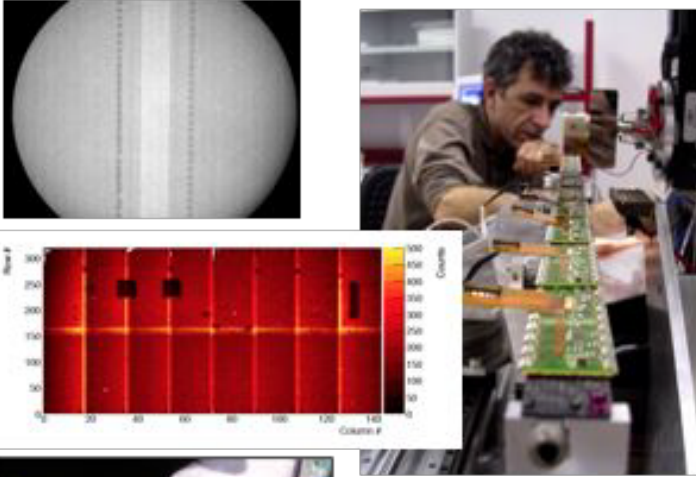


The team for microstrip construction 1991

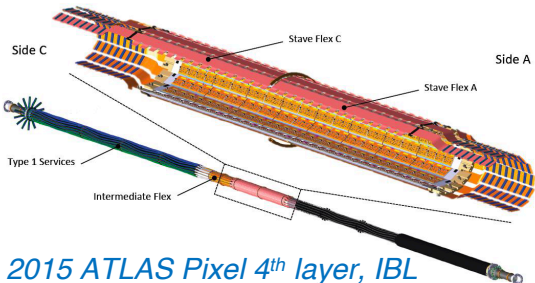


Genova in tracking – the big step and beyond

1998-2003 *ATLAS Pixel Construction*



Assembly of 3D modules for ATLAS ITk

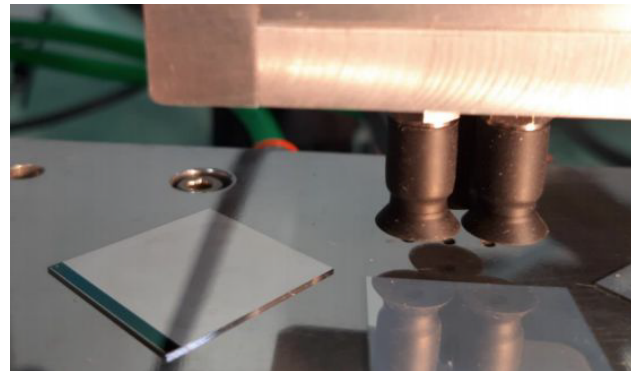


ATLAS Pixel Installation

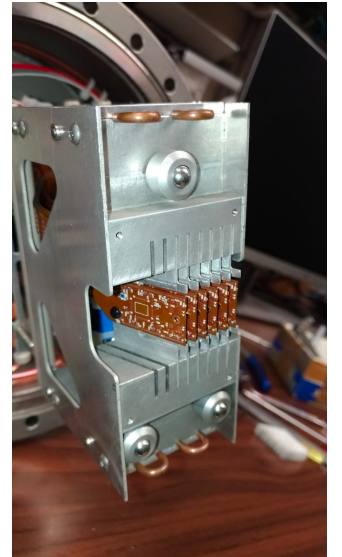
2015 ATLAS Pixel 4th layer, IBL

Transition to Pixel detectors happened within the framework of **RD19** and **WA97**: Genova was ready to sustain at all levels the project for a **Pixel detector in the ATLAS Experiment** at the LHC.

- **Unprecedented challenges** for surface, radiation damage, data transmission. The construction of the Pixel detector with activities in several areas, represents the **real step** for the Genova's group. The team has grown significantly in person-power, instrumentation and space.
- Now large involvement in the new ATLAS tracker with activities in **3D sensors, modules assembly, local support construction, loading modules on supports, system test, CO2 cooling.**



Also, activities for the CMS PPS and for its future tracker upgrade.



Genova in tracking – international meetings

A long history of the Genova group in Vertex detectors (and conferences)



VERTEX 2023 – Logistic information

- **Coffee/Tea** breaks in the close-by room
- Light **lunches** on Monday/Tuesday and Thursday organized at the floor stage
- **Social** events:
 - **Welcome drink and Poster session:** Monday at 18:15-19:30
 - Posters will be introduced by speakers in the main session later today.
 - The **social dinner** will be held at [restaurant Vis á Vis](#) in Sestri Levante in the evening of Tuesday 17th October 2023.
 - **Optional excursions** are organized in Wednesday afternoon. See details [here](#).

Genova city visit



Musel+ Pesto



Hiking to Punta Manara



Other information

- Do not hesitate to contact us!
 - Practicalities: vertex2023-loc@ge.infn.it
 - Administrative: admin@scienceiscool.it
- For the speakers:
 - Please upload the slides by 8 am (for the morning) and by 13:30 (for the afternoon)
- If you are curious of our dialect, you can check more [here](#)
- The local committee

Mirko Corosu (network, computing)
Francesco Di Bello
Claudia Gemme (chair)
Paolo Morettini
Stefano Passaggio (co-chair)
Martina Ressegotti

Enrico Robutti (co-chair)
Cecilia Rossi
Federico Silenzi
Mário José Sousa
Leonardo Vannoli



**Università
di Genova**



Worldwide presence

CAEN boasts 4 headquarters strategically located across the globe.

- CAEN S.p.A. (Italy)
- CAENspa India Private Limited (India)
- CAEN GmbH (Germany)
- CAEN Technologies (U.S.A.)

Worldwide sales network offices in Italy, Germany, USA,
Distributors in more than 30 countries.

Portfolio: > 5000 customers

Customers Include all world leading research centres as:

Europe: CERN, INFN, CEA, CNRS; GSI, ESO, ISIS,
Ganil, PSI, ...

USA: FNAL, SLAC, Los Alamos, BNL, Jlab, ...

Asia: J-Park, KEK, Riken, IHEP, TIFR, ...

Africa: iThemba Labs, ...

And private companies:

GE, Siemens, SAIC, L3, Raytheon, Lockheed...



Market

For more than 40 years CAEN has been providing Scientists and Engineers with the most advanced electronic instrumentation for any particle or radiation detectors

Strong of an extremely close collaboration with the world major research laboratories CAEN is proud to produce the best tools for:

- > High Energy Physics
- > Astrophysics
- > Neutrino Physics
- > Dark Matter Investigation
- > Nuclear Physics
- > Material Science
- > Medical Applications
- > Homeland Security
- > Industrial Applications
- > Spectroscopy Applications

