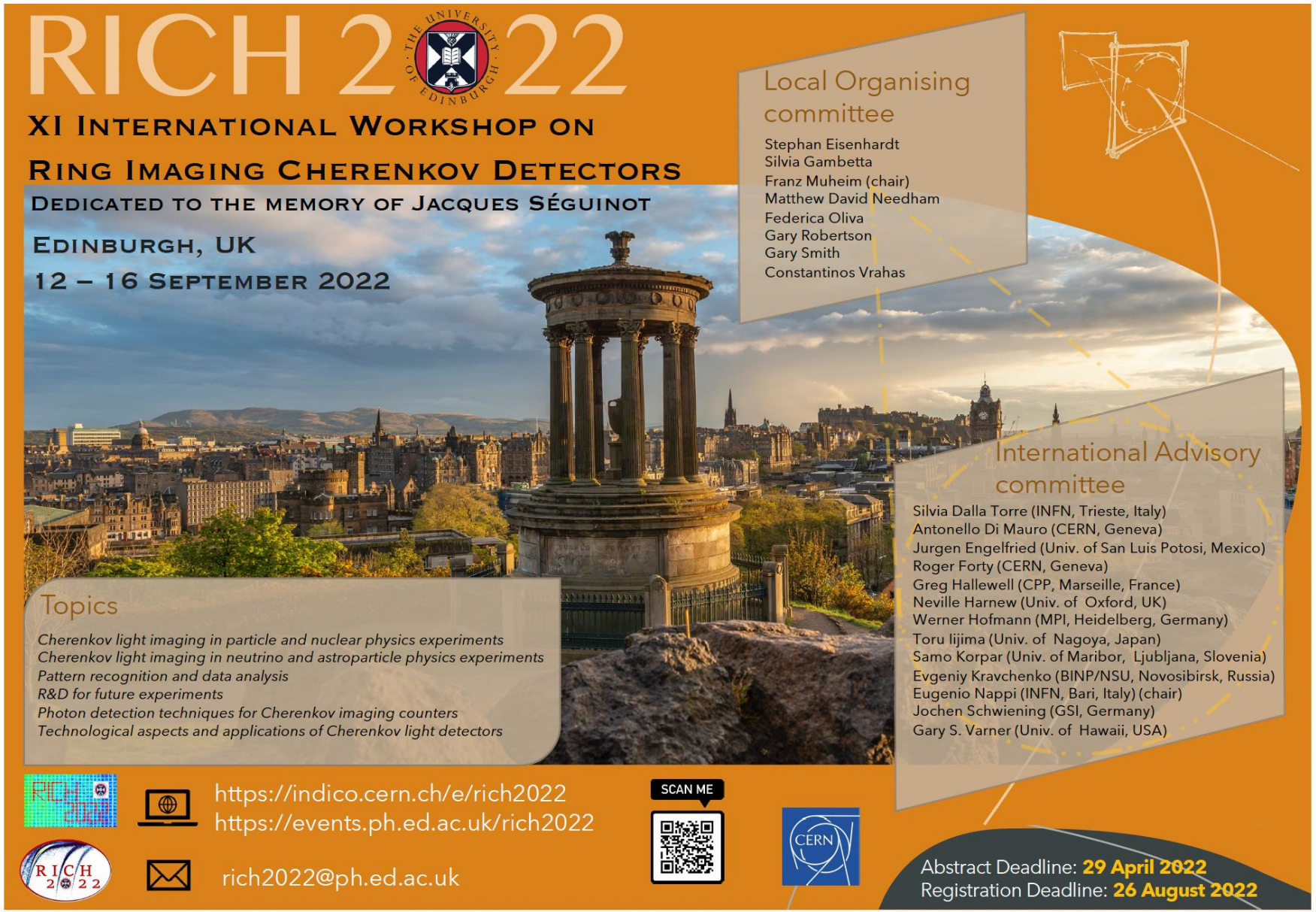
CLOSE OUT


RICH 2022
XI International Workshop on
Ring Imaging Cherenkov Detectors
Dedicated to the memory of Jacques Séguinot
Edinburgh, UK
12 – 16 September 2022
Local Organising committee
Stephan Eisenhardt
Silvia Gambetta
Franz Muheim (chair)
Matthew David Needham
Federica Oliva
Gary Robertson
Gary Smith
Constantinos Vrahas
International Advisory committee
Silvia Dalla Torre (INFN, Trieste, Italy)
Antonello Di Mauro (CERN, Geneva)
Jurgen Engelfried (Univ. of San Luis Potosi, Mexico)
Roger Forty (CERN, Geneva)
Greg Hallewell (CPP, Marseille, France)
Neville Harnew (Univ. of Oxford, UK)
Werner Hofmann (MPI, Heidelberg, Germany)
Toru Iijima (Univ. of Nagoya, Japan)
Samo Korpar (Univ. of Maribor, Ljubljana, Slovenia)
Evgeniy Kravchenko (BINP/NSU, Novosibirsk, Russia)
Eugenio Nappi (INFN, Bari, Italy) (chair)
Jochen Schwiening (GSI, Germany)
Gary S. Varner (Univ. of Hawaii, USA)
Topics
Cherenkov light imaging in particle and nuclear physics experiments
Cherenkov light imaging in neutrino and astroparticle physics experiments
Pattern recognition and data analysis
R&D for future experiments
Photon detection techniques for Cherenkov imaging counters
Technological aspects and applications of Cherenkov light detectors
https://indico.cern.ch/e/rich2022
https://events.ph.ed.ac.uk/rich2022
SCAN ME
rich2022@ph.ed.ac.uk
CERN
Abstract Deadline: 29 April 2022
Registration Deadline: 26 August 2022

ELSEVIER

Nuclear Instruments and Methods in Physics Research A 401 (1997) 187–205

NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH Section A

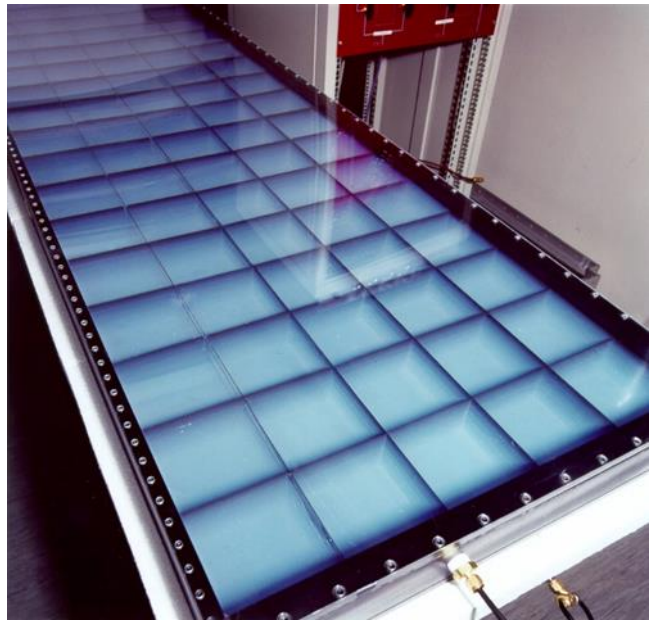
Electronic detection of focused Cherenkov rings from aerogel

R. De Leo[a], L. Lagamba[a], V. Manzari[a], E. Nappi[a,*], T. Scognetti[a], M. Alemi[b], H. Becker[b], R. Forty[b], I. Adachi[c], R. Suda[c], T. Sumiyoshi[c], A. Leone[d], R. Perrino[d], C. Matteuzzi[e], J. Seguinot[f], T. Ypsilantis[f], E. Cisbani[g], S. Frullani[g], F. Garibaldi[g], M. Iodice[g], G.M. Urciuoli[g]

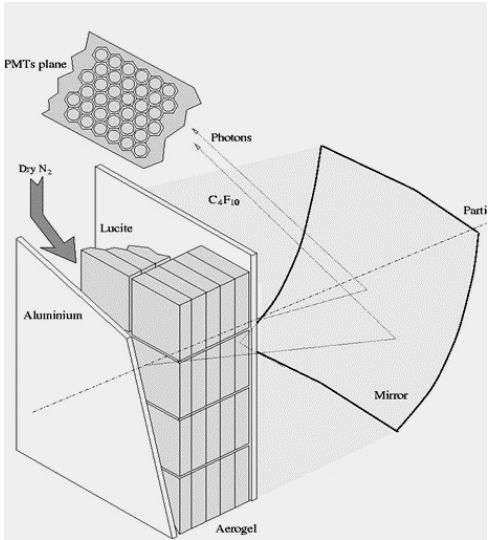
[a] *Dipartimento Interateneo di Fisica e Sez. INFN Bari, via Amendola 173, I-70126 Bari, Italy*
[b] *European Center for Nuclear Research, 23 Geneva, 1211, Switzerland*
[c] *National Lab for High Energy Physics, 1-1 Oho, Tsukuba-shi, Ibaraki-ken 305, Japan*
[d] *Sezione INFN di Lecce, via Arnesano, I-73100 Lecce, Italy*
[e] *Dipartimento di Fisica e Sezione INFN di Milano, via Celoria 16, I-20133 Milano, Italy*
[f] *Laboratoire de Physique Corpusculaire, 11 Place Marcelin Berthelot, 75231 Paris Cedex, France*
[g] *Laboratorio di Fisica dell'Istituto Superiore di Sanita' and Sezione INFN Sanita', viale Regina Elena 299, I-00161 Roma, Italy*

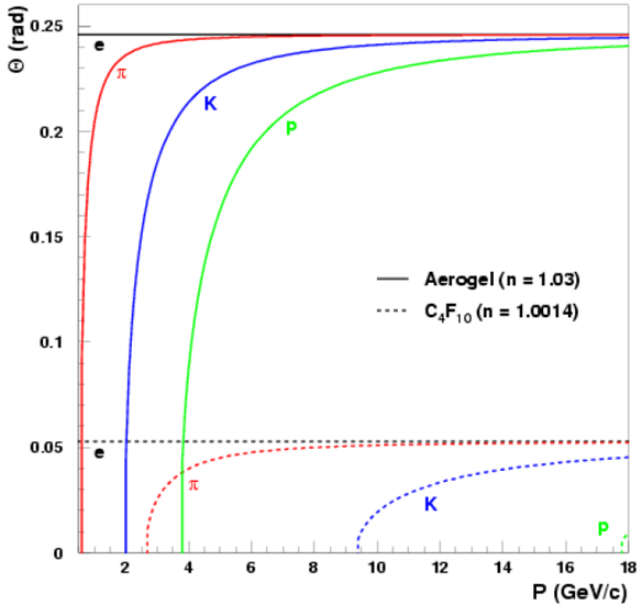
Received 4 July 1997

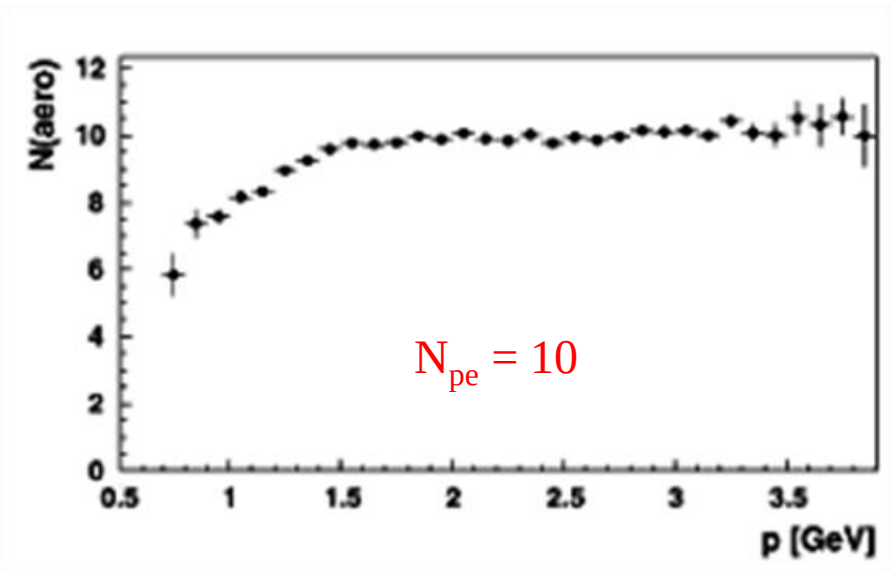
Aerogel total surface:11 m²

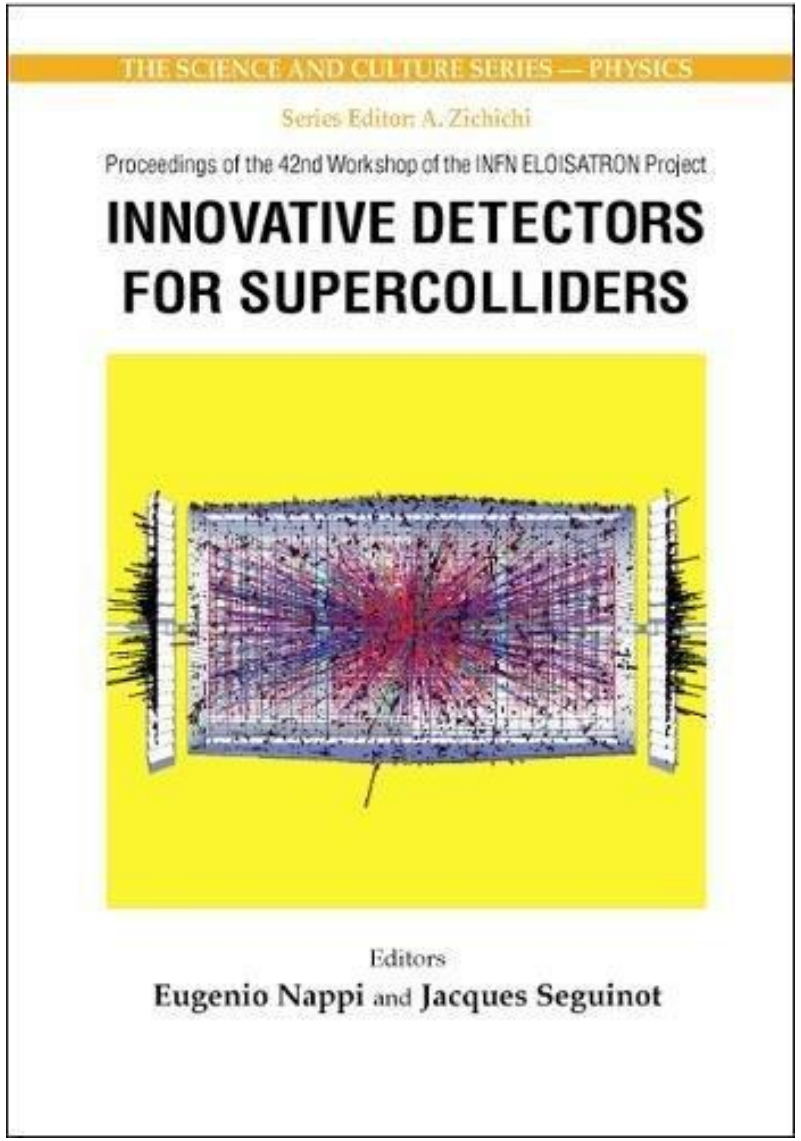


HERMES EXPERIMENT AT DESY









ERICE - 2003

PROGRAMME AND LECTURERS

GENERAL ASPECTS

Novel supercolliders: what's next?
• W. A. BARLETTA, LBL, Berkeley, CA, USA

Detector construction, quality controls and commissioning
• A. BALL, CERN, Geneva, CH

Detector simulation and GRID technology
• F. CARMINATI, CERN, Geneva, CH

Magnetic field geometries
• F. KIRCHER, Saclay, F

Front-end and Read-out electronics
• P. WEILHAMMER, CERN & INFN, Perugia, I

Multichip technology and active pixel sensors
• M. CAMPBELL, CERN, Geneva, CH

Trigger systems at hadron supercolliders
• N. ELLIS, CERN, Geneva, CH

Data acquisition and mass storage
• P. VANDE VYVRE, CERN, Geneva, CH

TRACKING WITH SOLID-STATE DETECTORS

Precision Inner Tracking Systems
• C. HABER, LBL, Berkeley, CA, USA

New trends
• S. ROE, CERN, Geneva, CH

Diamond and non-Si detectors
• H. KAGAN, Ohio State University, Columbus, OH, USA

Development of semiconductor detectors for very harsh radiation environments in high energy physics applications
• G. CASSE, University of Liverpool, UK

TRACKING WITH GASEOUS DETECTORS

New trends in gaseous detectors
• F. SAULI, CERN, Geneva, CH

Micro-pattern gaseous detectors
• V. PESKOV, KTH - Royal Institute of Technology, Stockholm, S

System's aspects of gaseous tracking detectors
• T. MEYER, CERN, Geneva, CH

Radiation damage and long term ageing in gas detectors
• M. TITOV, Freiburg University & ITEP, Moscow, RU

LEPTON IDENTIFICATION

Transition radiation detectors: recent developments and perspectives
• P. SPINELLI, University and INFN, Bari, I

Hadron blind RHIC detectors
• R. GERNHAUSER, Technische Universität, München, D

Pre-showering techniques
• A. GO, National Central University, Taoyuan, TW

Muon detection
• A. DI CIACCIO, University of Tor Vergata and INFN, Rome, I

HADRON IDENTIFICATION

Cherenkov imaging techniques
• J. VAVRA, Stanford Linear Accelerator Center, Menlo Park, CA, USA

Aerogel applications
• R. DE LEO, University and INFN, Bari, I

TOF
• C. WILLIAMS, INFN, Bologna, I

dE/dx
• H. BICHSEL, University of Washington, Seattle, WA, USA

CALORIMETRY

E.M. calorimetry
• T. CAMPORESI, CERN, Geneva, CH

Hadron calorimetry
• J. FREEMAN, Fermi National Accelerator Laboratory, Batavia, IL, USA

Current status and future prospects of inorganic scintillator research
• P. DORENBOS, Technische Universiteit, Delft, NL

Radioactivation
• M. HUHTINEN, CERN, Geneva, CH

TRENDS IN THE PHOTON DETECTION

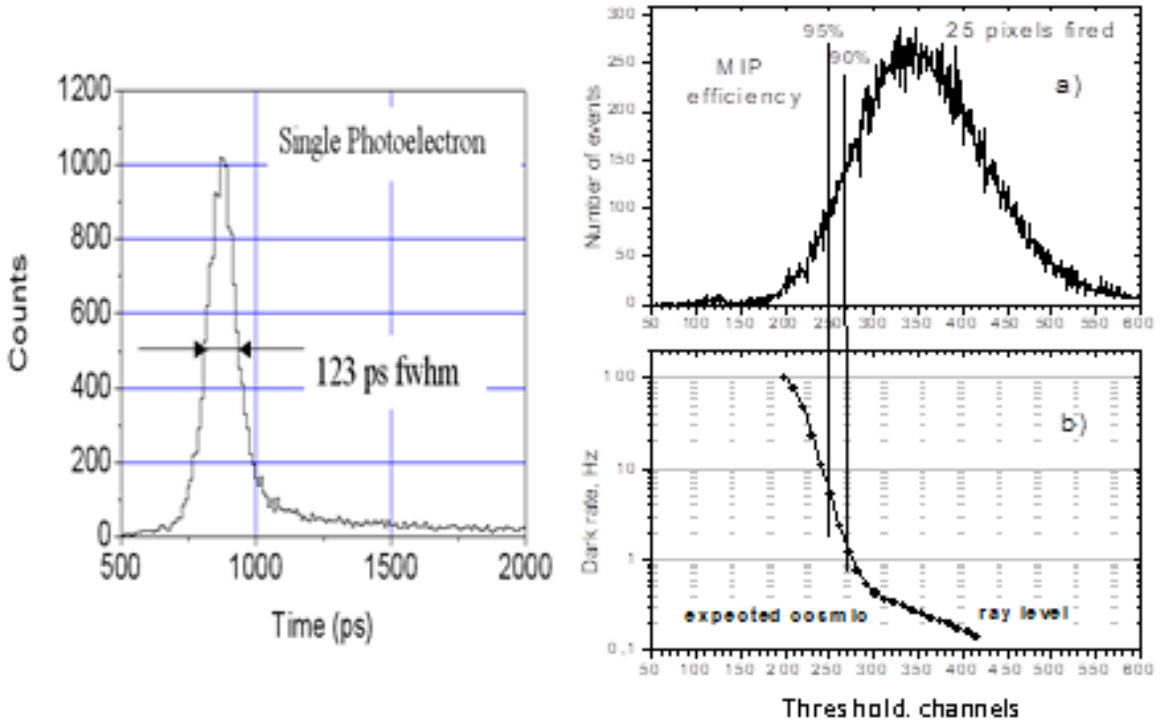
HPDs and MaMPTs
• C. JORAM, CERN, Geneva, CH

Advances in avalanche photodiodes
• Y. MUSIENKO, Northeastern University, Boston, MA, USA

SiPMs, silicon photomultipliers
• B. DOLGOSHEIN, Moscow Engineering and Physics Institute, RU

Silicon photomultipliers in particle physics: Possibilities and limitations

B. Dolgoshein(Moscow Phys. Eng. Inst. ON BEHALF OF SIPM COLLABORATION
SiPM Collaboration: MEPhI, Moscow, PULSAR, Moscow



SiPM's : perspectives of the developments

The Si Photomultiplier is a rapidly developing technique, which has not reach its best parameters for the time being. Nevertheless, already now the SiPM has a good chance to be used for next generation of the experiments in Particle Physics, especially for next generation of High Luminosity Colliders (fast calorimetry and scintillation tracking, subnanosecond timing etc).

86 participants, mostly attending in person!

Outlook

The road ahead is challenging but exciting.

Run 4 will be a big step along the way for time-resolved readout.

- ASIC specification/development is well under way (FastRICH, CERN/ICCUB).
- Active test beam and lab program (TDC-in-FPGA, FastIC, sensor studies, aerogel studies).

There is much to do but current technologies are already close to be suitable.

Baseline simulation studies are evolving fast.

More to to explore:

- Cryogenic operation;
- New aerogel [A. Lozar];
- Light collection systems (mirrors, micro-lenses) [R. Cardinale];
- Green gases for radiators & cooling, leak free systems;
- Novel radiators (meta-materials);
- New reconstruction methods (new architectures, faster algorithms, CNNs).

Now is a great time for young researchers to get involved.

Proceedings

Elsevier/North-Holland Publishing Company will publish the proceedings as a special issue of Nuclear Instruments & Methods in Physics Research, Section A.

The deadline for the paper submission is **December 16, 2022**

The paper must be written in **LaTeX** or **Microsoft Word**, instructions will be uploaded on the WS indico site

Contributed talks must not exceed 4 pages

3 printed 'NIM A' pages for posters

Invited talks must not exceed 8 pages

Next RICH Workshop

Mainz in September 2025

Hosting Institutions:

- Goethe University Frankfurt (Klaus Peters et al.);
- Justus Liebig University Gießen (Claudia Höhne et al.)
- GSI (Jochen Schwiening et al.)

Mid-size city (population 220,000) at junction of Rhine/Main rivers
Attractive old town, easy access to boat trips on river

Acknowledgements

My heartfelt thanks to Franz and his team for having professionally organized and run smoothly the WS;

Special thanks to Federica and Gary

To the advisory committee members for arranging a fruitful scientific programme;

To all the attendees

To the speakers and poster presenters, their active participation is the heart of this series of WS

HAVE A SAFE TRIP HOME AND LOOK FORWARD TO SEEING YOU IN 2025 IN MAINZ