

New CERN seminar series puts spotlight on future colliders

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On 14 March 2023, an audience of about 140 physicists in CERN's Main Auditorium and another up to 470 participants online gathered for the opening seminar of a new series devoted to future circular colliders. The three presentations of this first seminar - by Steinar Stapnes, Daniel Schulte, and the author - provided a perspective on status, challenges and plans of the proposed Future Circular Collider (FCC), Compact Linear Collider (CLIC) / International Linear Collider (ILC) and Muon Collider. These colliders under actual consideration represent three different future directions, facing various challenges. As an example, an image of the FCC superimposed on the local landscape is shown above.

The new seminar series was launched and introduced by Michelangelo Mangano, the leader of CERN's "Future Colliders" unit, who had been inspired by a similar, popular seminar series at DESY in Germany, that is already running since two years and had been co-initiated by DESY's Jenny List. Michelangelo, Jenny, Steinar, Daniel, and the author, complemented by Martin Aleksa, are jointly organising the new seminar series at CERN.

Michelangelo explained the rationale behind the CERN seminars: *"A lot of work is taking place to prepare for a future accelerator facility beyond the LHC ... And while the basic motivations for future colliders, and their physics potential, are usually well known, more detailed information about technological challenges and progress, achievements, timelines, etc., is typically confined to internal meetings, and thus less easily available to the CERN community"*. To mitigate this situation, the new seminar series intends to inform the broader CERN community - personnel from different departments as well as users and visitors - about the progress on the various projects. The presentations will cover aspects ranging from accelerator and detector design and technology R&D, via civil engineering and environmental issues, to physics targets.

Evidently, this concept has resonated with the community. Among the roughly 600 attendees of the opening event were quite a number of young people. Some of the questions raised after the talks concerned the long timelines for the next energy-frontier projects. Others related to optimum strategies and international collaborations or competitions.

Future seminars in this series will be held at a rhythm of approximately once per month, on Tuesdays from 11.00 am, always in CERN's Main Auditorium along with Zoom and webcast transmission. Upcoming seminars will address magnet development, sustainability, detector concepts, and radiofrequency systems. The second seminar is already scheduled for 2 May. Follow us!



Frank Zimmermann - Senior scientist at CERN and FCC deputy study leader. Starting from HERA and early LHC design, he worked on SLC, NLC design, PEP-II, KEKB, Tevatron, and LHC commissioning. He co-proposed HL-LHC, LHeC, HE-LHC, and the FCCs. He wrote 800 scientific articles, and received a few awards (EPS-IGA, USPAS, APS fellow). He edits PRAB and served as 2022 APS-DPB Chair.