



2020 virtual NSS/MIC and RTSD

How it went, lessoned learned, impression

*Ralf Engels
January, 2021*

What a year this has been...

- ▶ Good news: only 60 days left in 2020
- ▶ Bad news: still 60 days left in 2020
- ▶ We started preparations three years ago -- BUT everything changed in March
 - June - made the decision to go fully virtual
 - August/September - selected platform and suppliers
 - September/October - configured the virtual platform and integrated it with the traditional system
- ▶ We tried to virtualize as much as possible of the traditional, in-person experience
- ▶ We hope you were satisfied with the results



The Concept & Technology



2020 IEEE NSS MIC Conference
Boston / Virtual

- ▶ The **date and timing was kept** as usual (Boston Time zone)
- ▶ The usual layout was kept to reduce confusion
- ▶ Video of each session recorded and uploaded talk available for attendees - if author gave permission
- ▶ EventClass supplied the conference system as they have done for many years
- ▶ smartEvents operated the “Hopin.to” Online System
- ▶ Streaming via vimeo
- ▶ Live stream from Plenaries on conference website

- User / Attendee Registration will give access to both systems via a given code / user account

Conference System

- Program Layout / Online Program
 - Build your own session plan via Calendar entries
- Download all Papers (Oral, Poster, videos) as PDF or mp4 or...
- All Material will be available until 30 November, 2020
- Job Offer Tool
- VISA Tool
- Trainee Grant

Online System

- The Layout is the same as in the Online Layout
- Virtual Session Rooms for NSS/MIC/RTSD
 - See the live stream
 - In case a presenter is missing his talk time (no show) the administrator is performing the pre-recorded presentations (if available) to the audience
 - Each session will be recorded. After the session the record will be prepared to provide the video presentation through the online program
 - Ask question with the Q&A tool
- Poster Session Rooms depending on the session
 - Each poster has his own room where up to 20 people can get into a live chat/conversation with the presenter
- Short Courses
- Exhibition Area
 - Each company has his own booth
- Technical Sessions on Wednesday
- Smaller Rooms with a fix maintain schedule for Registration, CIP, Membership Desk
- Smaller Meeting Rooms for people to meet on demand
- All Material will be available until 30 November, 2020

The screenshot displays the conference website interface. At the top, it features the 'NPS Plenary' title and a yellow background. Below this, there is a section for 'Virtual 2020 IEEE Nuclear Science Symposium & Medical Imaging Conference' with a date of 'Monday, 3 November, 2020 | 8:00 a.m. - 10:15 a.m.'. The main content area lists the 'NP-1 | NSS Plenary' session, including the speaker 'Prof. Sara A. Gonzalez' and the title 'The Challenge of Designing a Nuclear Reactor for the Next Generation'. The website also features the IEEE logo and navigation icons.

Conference Session Layout / Online Program

- ▶ 7 Short Courses and up to two in parallel
- ▶ Parallel Oral Sessions up to 6
- ▶ Plenaries and Award Sessions; Live streamed
- ▶ 3 Joint Sessions
- ▶ Poster Session (>100 rooms)
- ▶ WIE and YP events during lunch breaks
- ▶ 2 Refresher Courses
- ▶ Exhibitor Technical Sessions



Virtual Conference - Look and Feel

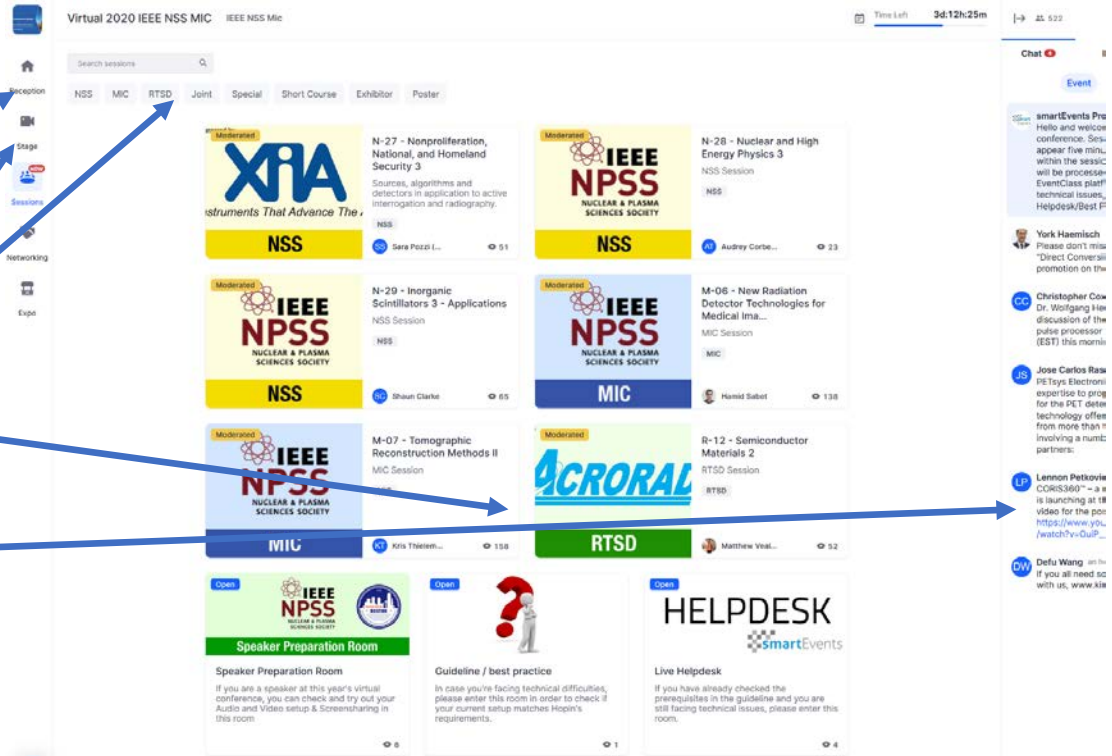
Only currently active Sessions / Rooms are shown

The screenshot displays the user interface for the Virtual 2020 IEEE NSS MIC conference. At the top, the event title "Virtual 2020 IEEE NSS MIC" and "IEEE NSS Mic" is shown, along with a "Time Left" indicator. A search bar labeled "Search sessions" is present. Below it, a horizontal menu contains filters: "NSS", "MIC", "RTSD", "Joint", "Special", "Short Course", "Exhibitor", and "Poster". A blue oval highlights this menu. On the left, a vertical sidebar lists navigation options: "Reception", "Stage", "Sessions", "Networking", and "Expo", with "Sessions" highlighted in blue. The main content area features three session cards, each with an "Open" button and a room count:

- Speaker Preparation Room:** Includes the IEEE NPSS logo and a description: "If you are a speaker at this year's virtual conference, you can check and try out your Audio and Video setup & Screensharing in this room." (6 participants)
- Guideline / best practice:** Includes a 3D figure with a red question mark and a description: "In case you're facing technical difficulties, please enter this room in order to check if your current setup matches Hopin's requirements." (1 participant)
- HELPDESK:** Includes the SmartEvents logo and a description: "If you have already checked the prerequisites in the guideline and you are still facing technical issues, please enter this room." (5 participants)

Virtual Conference - Look and Feel

- ▶ Choose what you like from the menu
- ▶ Stages were for Plenaries/awards only
- ▶ Possibility to sort by topics
- ▶ Sponsors were able to sponsor a „room“ logo
- ▶ Chat could be “all”, per room or person to person only



Session

Running a session

- ▶ Before the session
 - Presenter Uploaded the slides
 - Uploaded a video as well; as fall back due to non-live performance issues
- ▶ Presenter met with the session chair before the session start
 - To be prepared in case a presenter wasn't present and had to be replaced by a video
- ▶ Q&A came via the chat in this “room”
- ▶ After the session, the “session video” was available in the online program
- ▶ Attendees could make calendar entries to be reminded of important talks
- ▶ Summary and abstract were available if provided by the author
- ▶ Button to contacted the Presenter was also available

Photodetectors 1

Virtual
2020 IEEE Nuclear Science Symposium & Medical Imaging Conference

Monday, 2 November 2020 4:00 pm - 6:48 pm

N-02 | Photodetectors 1

Chair: **G.A. Brubaker** (Ottawa National Laboratories (ONL), University of Ottawa, Ottawa, Ontario, Canada)

Presentations:

- 4:00 pm N-02-01 Optimization of High Count Rate MCP/Timepix Photon Counting Detectors for Synchrotron Applications
Julian Humber (University of Cambridge, Cambridge, United Kingdom)
- 4:18 pm N-02-02 Analysis of the performance of square photomultiplier tubes with 6 µm pore microchannel plates
James S. Wilson (Princeton Univ, Princeton, NJ, USA)
- 4:36 pm N-02-03 The Performance Evaluation and Physics Characterization of Small Pixel MCP-PMT
Ben Qian (Chinese Academy of Sciences (CAS), The Institute of High Energy Physics, Beijing, China)
- 4:54 pm N-02-04 Development of Photon Tubes with Glass Micro-Resistors and Atomic Layer Deposition
Dorand Sengupta (University of California, Santa Barbara, Santa Barbara, CA, USA)
- 5:12 pm N-02-05 Characterization of Position Sensitive Thermal-Viewing Detectors with Novel Scintillators and Microchannel Photomultiplier Tubes
Loren Beyer (University of Guelph, School of Physics and Astronomy, Guelph, ON, Canada)
- 5:30 pm N-02-06 Large Area, Low Cost, High Sensitivity LAPPD Sensors for Nuclear Science and Medical Imaging Applications
Michael A. Wilson (UCR, Riverside, CA, USA)

Contents

Click on a contribution to preview the abstract content.

4:00 PM	N-02-01	Optimization of High Count Rate MCP/Timepix Photon Counting Detectors for Synchrotron Applications	Abstract
		A. Humber¹, J. Curran¹, J. McPherson¹, M. Searling¹, G. Stegmann¹, R. Rathwell¹, S. Hoyle¹, M. Kuczyk¹, X. Feng¹, T. B. Chang¹, J. Saul¹, E. Huxford¹ ¹ University of Cambridge, Cambridge, United Kingdom	
		Abstract Detectors with Microchannel Plates have found niche applications in soft X-ray detection where event counting with high spatial and timing resolution is needed. The Timepix placed directly behind MCP in the vacuum core of the medical systems. The capability of these modules to detect many simultaneous events substantially increased the count-rate capabilities of these devices to O(10) counts. In this paper, we present the results obtained with an MCP detector coupled to a small Timepix module. The spatial resolution of this detector is shown here to be ~40 µm. This resolution is achieved in real time through the event counting. Optimization of detector characteristics are performed in order to achieve such a high spatial resolution. A range of application examples of these detectors at Bioscience Resource Project Scattering (BRIS) and X-ray Photon Correlation Spectroscopy demonstrate the unique capabilities of such devices for certain synchrotron-based experimental studies. Some MCP/Timepix detectors can be very attractive for the applications where the photomultiplier tube based counting with high spatial and temporal resolution is required, such as Time of Flight experiments in energy resolving neutron imaging at spallation neutron sources, fluorescence lifetime imaging and, if adapted for the selected detection, experiments on photoelectron spectroscopy.	
		Acknowledgment The development of Timepix detector was funded in part by the grant from the US Department of Energy No. DE-AC02-03-OR21400 awarded to Timepix Detectors for Soft X-ray Photon Correlation Spectroscopy.	
		<input type="button" value="Add to calendar"/> <input type="button" value="Check for new updates/abstract"/>	
		no updates/abstracts available	
4:18 PM	N-02-02	Analysis of the performance of square photomultiplier tubes with 6 µm pore microchannel plates	Abstract
		J.S. Wilson¹, V.K. Cornejo¹, R. Hsu¹, A. Buzel¹, C. Suster¹ ¹ Princeton University, Princeton, NJ, USA	
		Abstract Microchannel plates (MCPs) are used in a wide variety of applications, including particle detectors, image intensifiers, and electron optics. The performance of MCPs is highly dependent on the geometry of the microchannels, which are typically square or hexagonal in cross-section. In this paper, we present the results of a detailed analysis of the performance of square MCPs with 6 µm pore microchannel plates. The analysis shows that the performance of these MCPs is highly dependent on the geometry of the microchannels, and that the performance can be significantly improved by optimizing the geometry of the microchannels. The results of this analysis are presented in this paper.	
		<input type="button" value="Add to calendar"/> <input type="button" value="Check for new updates/abstract"/>	
		no updates/abstracts available	

Live Streaming on Conference Website

Plenaries were Live Streamed / still available as download



Welcome to the 2020 NSS-MIC!



CONFERENCE REGISTRATION

FINAL PROGRAM

LOGIN FOR: VIDEO TUTORIALS / PROGRAM / JOB POSTINGS

NSS/MIC MEETING QUESTIONNAIRE

Welcome to the 2020 NSS-MIC!

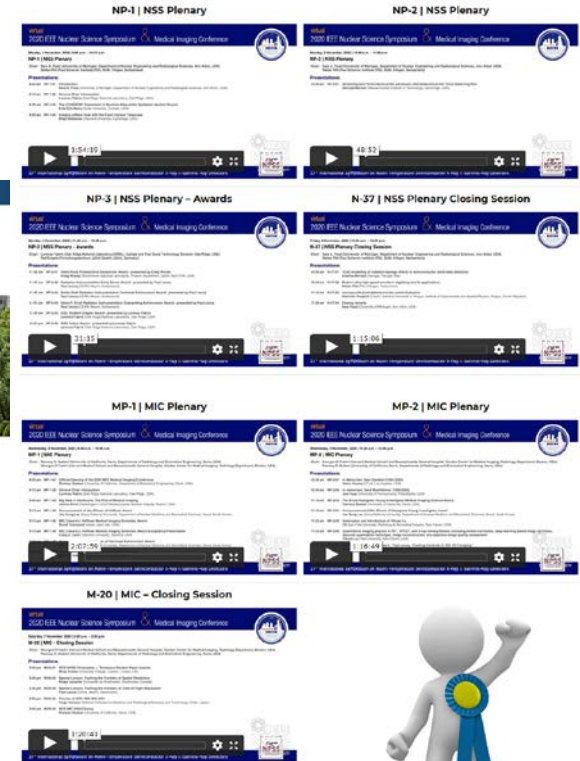


CONFERENCE REGISTRATION

FINAL PROGRAM

Latest News:

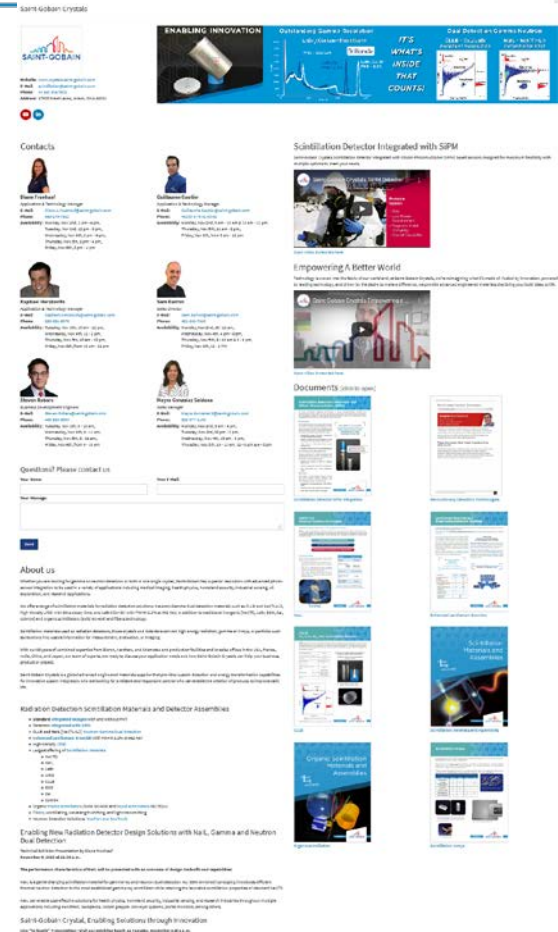
- October 31, 2020 – Conference began
- October 2, 2020 – On-line Program available
- October 1, 2020 – Virtual Exhibitor List
- September 14, 2020 – Registration is open
- August 9, 2020 – Presentation information added
- August 9, 2020 – Virtual Conference information added
- July 31, 2020 – Award Deadline (extended to July 31)
- July 29, 2020 – Announced that NSS/MIC 2020 will be virtual
- May 7, 2020 – Abstract deadline
- March 2020 – Abstract submission open
- March 2020 – Visa information available
- March 2020 – Job posting site opened



Our Sponsors and Exhibitors

Exhibitors / Sponsors were visible on two systems

- ▶ Each Exhibitor had a live booth within “Hopin.to”
- ▶ A platform in the conference system to add material like a brochure for attendee access
- ▶ Visibility everywhere possible for maximum exposure
- ▶ Exhibitor booth rate was \$2,000 (incl. 3 registrations)
- ▶ Sponsors gave at least \$500, up to \$10,000



Statistics

<https://nssmic.ieee.org/2020/>



Registration Numbers

Conference year 2020 (2019)



▶ Abstracts submitted	1093 (1380)
▶ Total Registration (incl. comps)	1391 (1848)
▪ IEEE Member	303 (327)
▪ Non IEEE Member	441 (616)
▪ IEEE Student Member	171 (214)
▪ Non IEEE Student Member	293 (252)
▪ Others (Life, Exhibitor, Day tickets,...)	183 (439)
▶ Short Course attendees	512 (292)
▶ Exhibitors / Companies / booths	30 (75)
▶ Young Professional	174 (NA)
▶ Woman in Engineering	153 (100)

1 United States	605 (43,06%)	605
2 United Kingdom	118 (8,40%)	118
3 Japan	93 (6,62%)	93
4 Italy	75 (5,34%)	75
5 Germany	68 (4,84%)	68
6 China	68 (4,84%)	68
7 France	56 (3,99%)	56
8 Canada	56 (3,99%)	56
9 Korea, Republic of	50 (3,56%)	50
10 Switzerland	34 (2,42%)	34
11 Spain	31 (2,21%)	31
12 Australia	26 (1,85%)	26
13 Finland	15 (1,07%)	15
14 Netherlands	15 (1,07%)	15
15 Belgium	13 (0,93%)	13
16 Portugal	11 (0,78%)	11
17 Israel	8 (0,57%)	8
18 Norway	8 (0,57%)	8
19 Denmark	5 (0,36%)	5
20 Mexico	5 (0,36%)	5
21 Poland	4 (0,28%)	4
22 South Africa	4 (0,28%)	4
23 Greece	4 (0,28%)	4
24 Czech Republic	4 (0,28%)	4
25 Hungary	3 (0,21%)	3
26 Sweden	3 (0,21%)	3
27 Austria	2 (0,14%)	2
28 Cyprus	2 (0,14%)	2
29 Slovenia	2 (0,14%)	2
30 Ukraine	2 (0,14%)	2
31 Macao	1 (0,07%)	1
32 Qatar	1 (0,07%)	1
33 Romania	1 (0,07%)	1
34 Chile	1 (0,07%)	1
35 Singapore	1 (0,07%)	1
36 Bangladesh	1 (0,07%)	1
37 Iran	1 (0,07%)	1

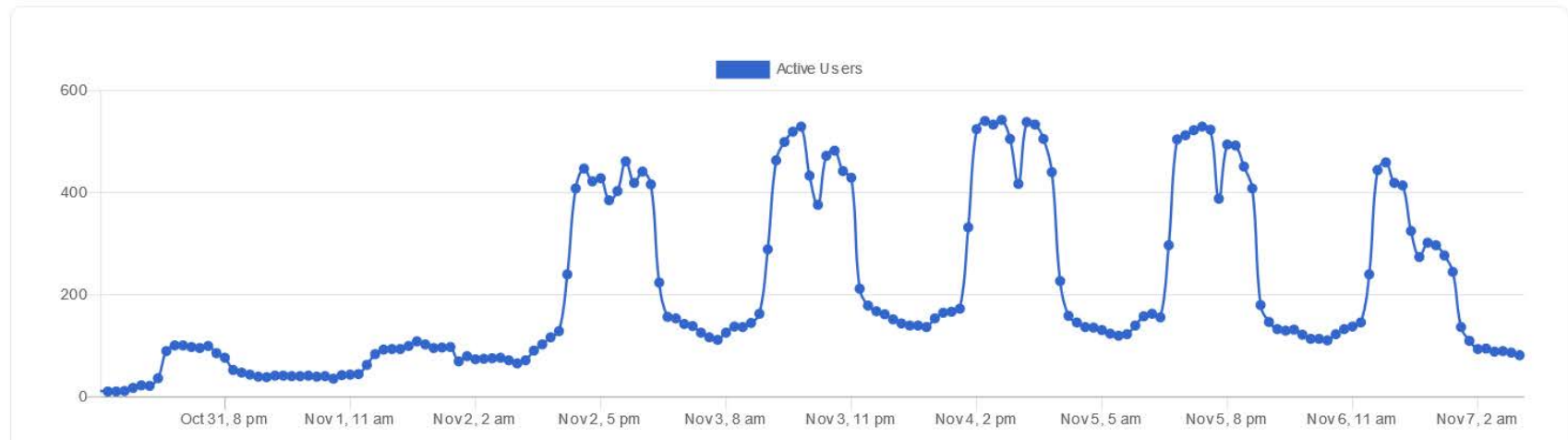
Online Tool

Not ALL attendees were online at the same time

Live Analytics

[Back to Overview](#)

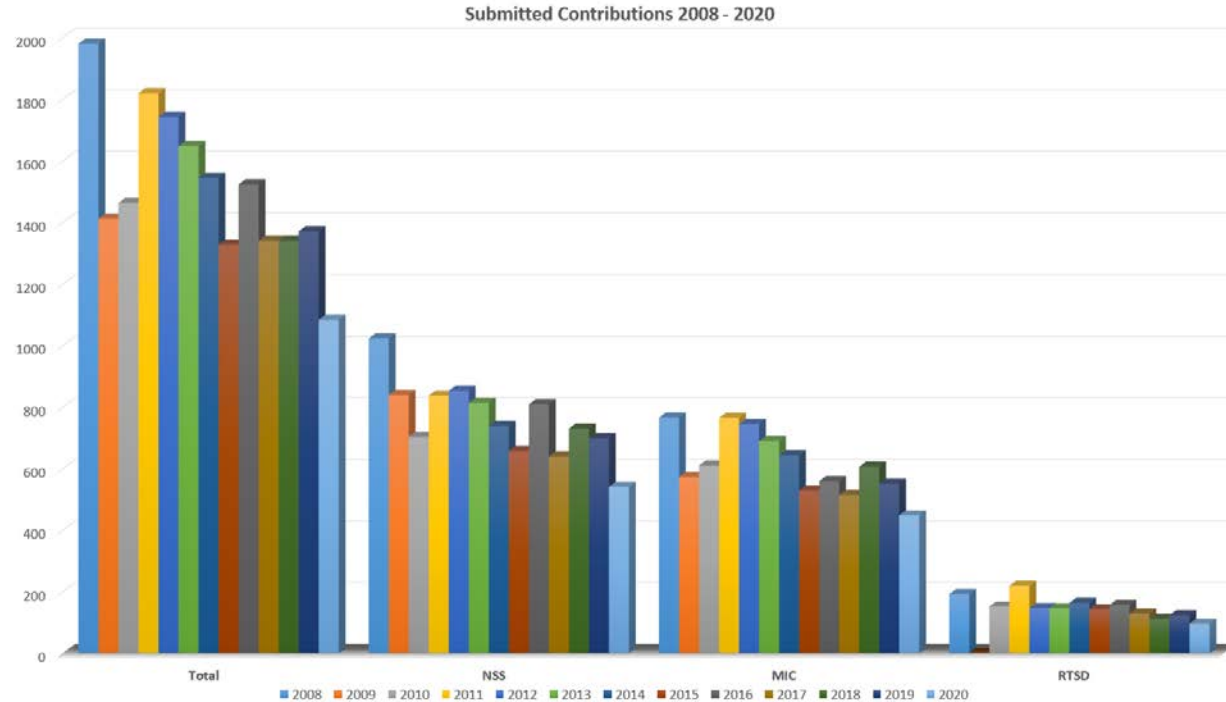
The number of active users each minute for the duration of your event



Submitted Abstracts

Compared to the past

- ▶ Down Slope !!!



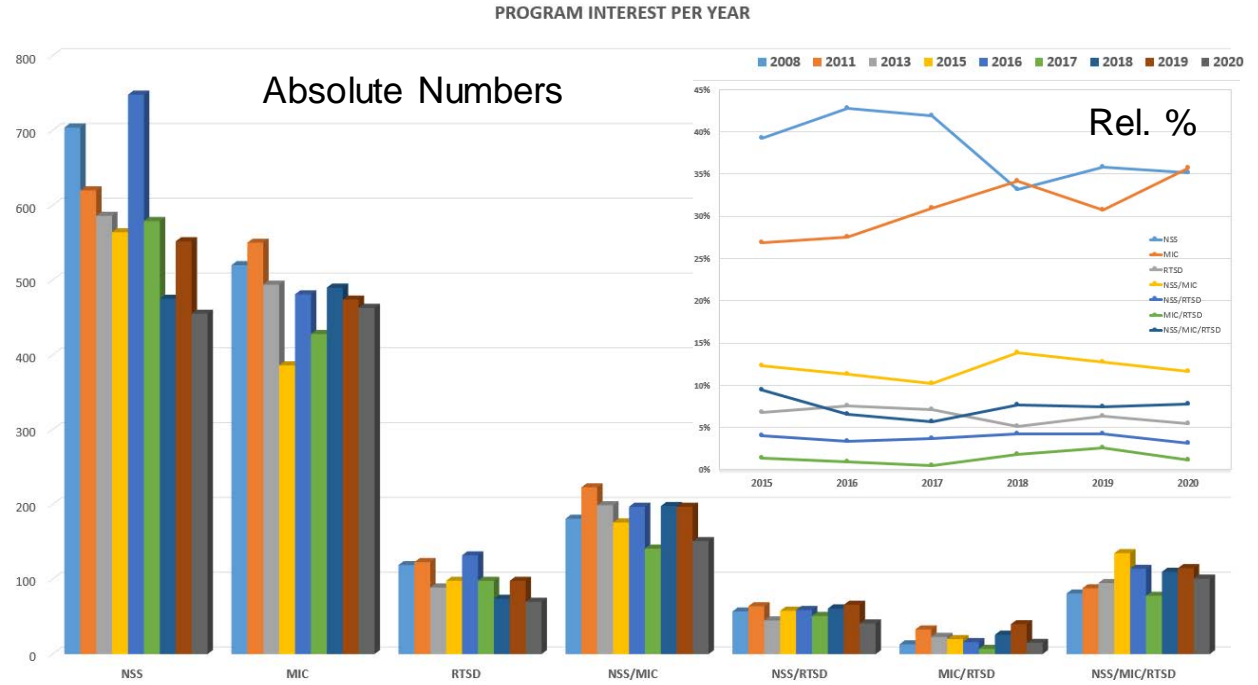
<https://nssmic.ieee.org/2020/>



Interest in the various program or combination

Input from the registration

- ▶ NSS and MIC have the most interest
- ▶ JOINT session is a good decision
- ▶ Overlapping between NSS and RTSD is higher than MIC and RTSD

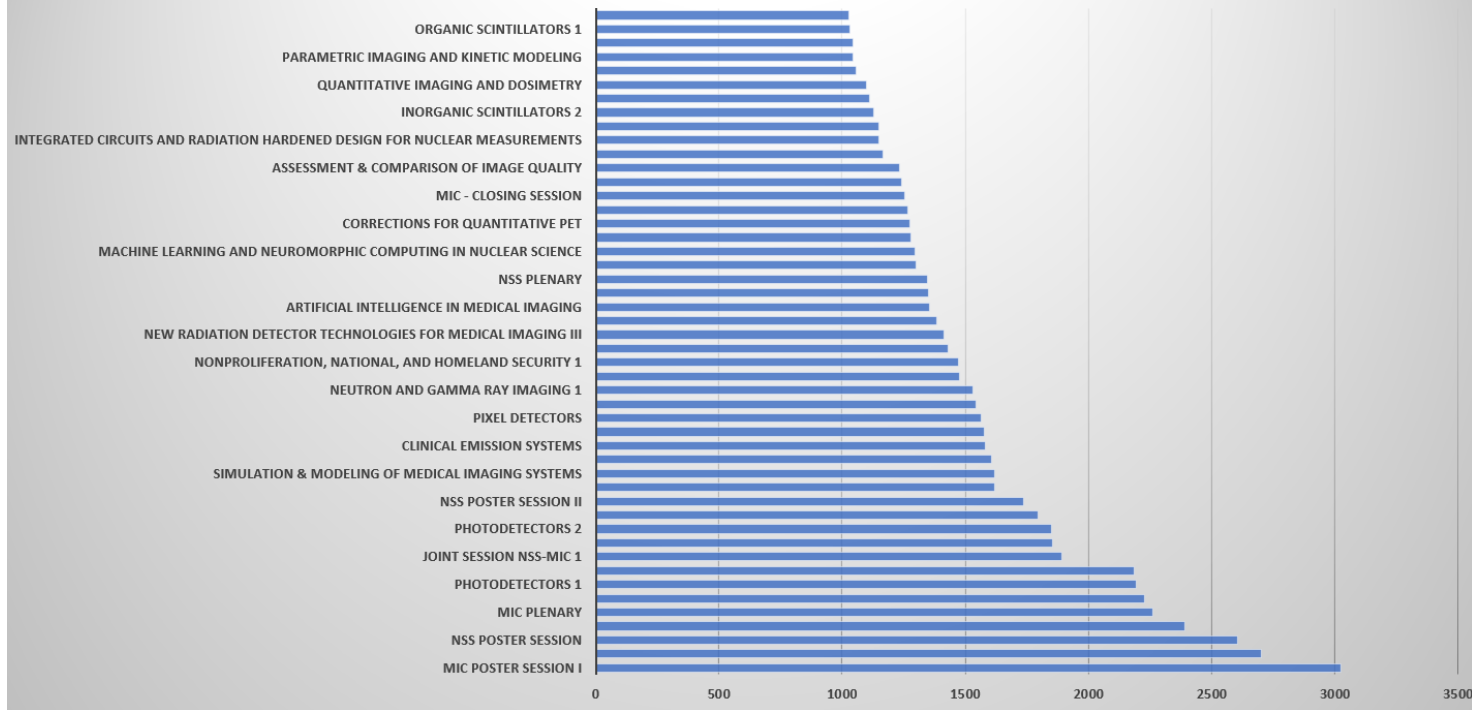


Online Tool

Sessions visited

This table shows session visits by logged in users. If an user enters a session twice, it counts as 2 visits

> 1000

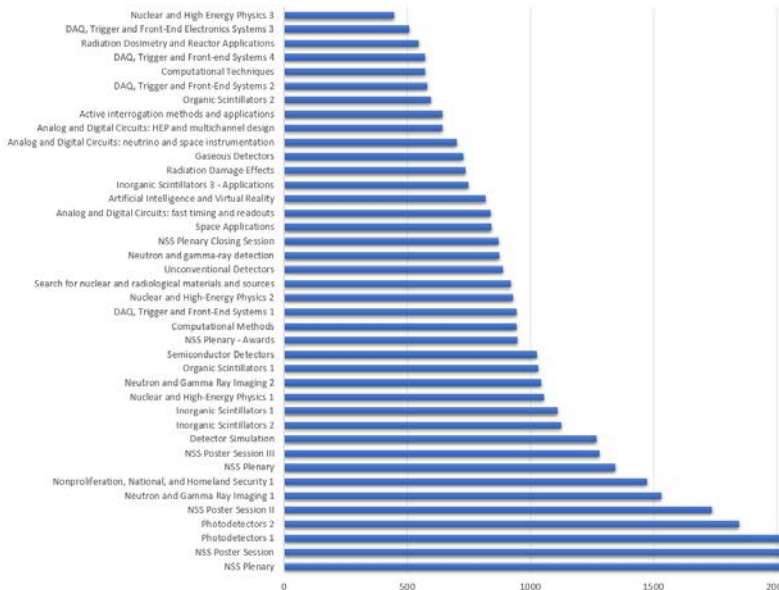


Conference Tool

Sessions visited

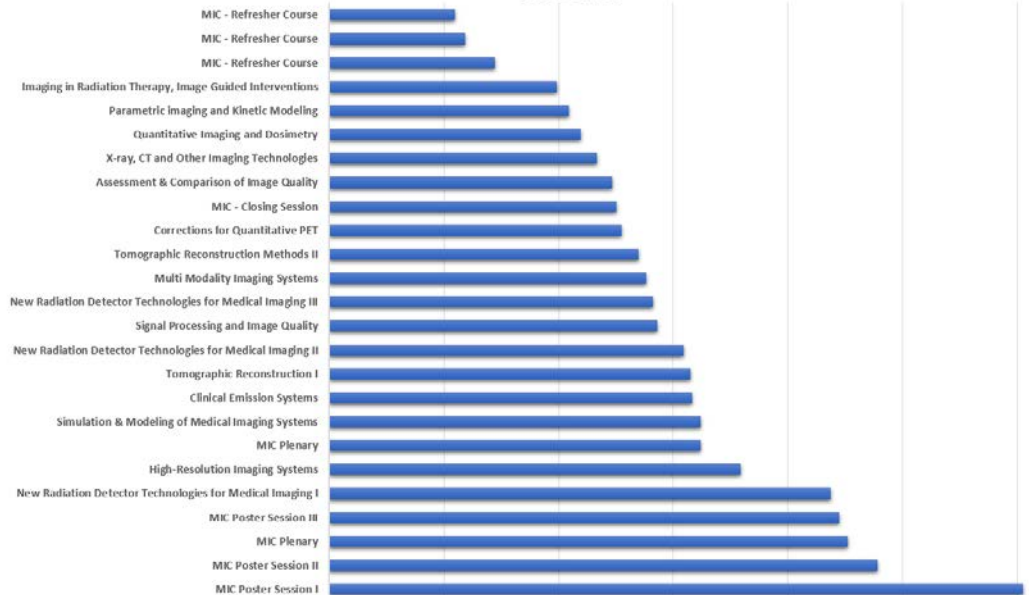
This table shows session visits by logged in users. If an user enters a session twice, it counts as 2 visits

NSS ONLY



This table shows session visits by logged in users. If an user enters a session twice, it counts as 2 visits

MIC ONLY

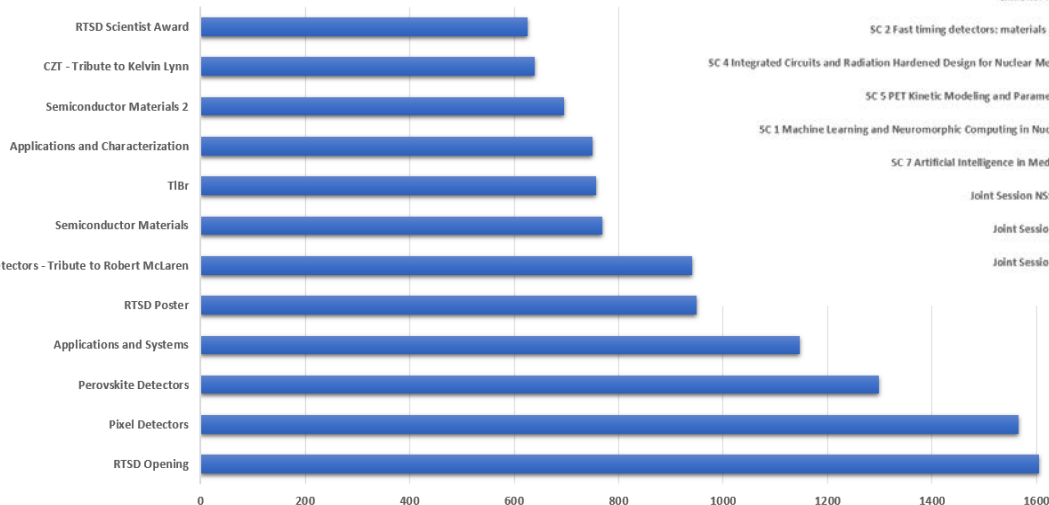


Conference Tool

Sessions visited

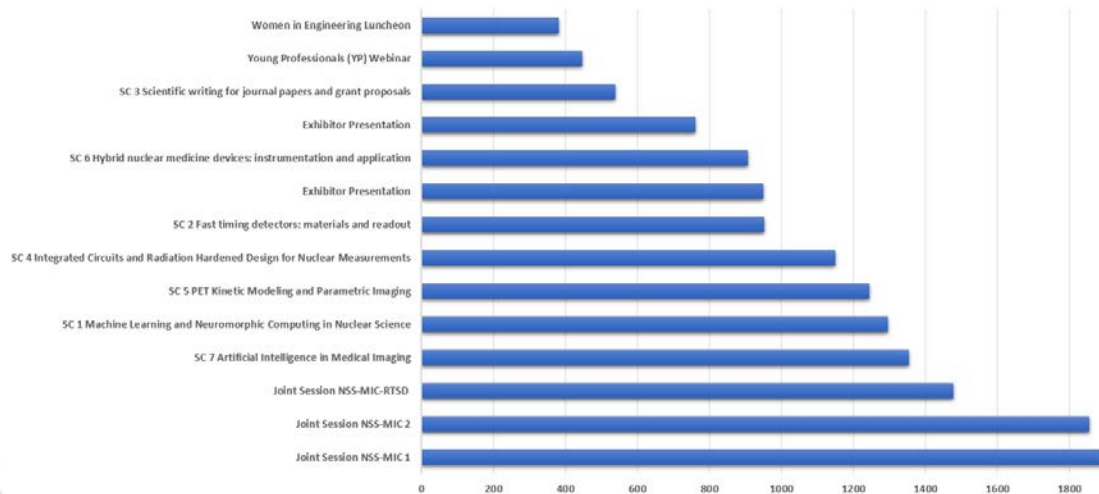
This table shows session visits by logged in users. If a user enters a session twice, it counts as 2 visits.

RTSD ONLY



This table shows session visits by logged in users. If an user enters a session twice, it counts as 2 visits

ALL others



Video Downloads

Status End Dec. 2020

E-Mails and Comments

Position	Count
Contribution Comments	148
E-Mails regarding contribution	159
E-Mails send via attendee lounge	335

Media Downloads

Download count from beginning of system setup

Type	Uploaded Files	Overall Download Count
Poster	525	30543
Presentation	386	17031
Summary	1094	24838

- ▶ People used the option to download after the conference (~30%)

Hopin.to

Name	Value
Registrations	1386
Turnout	2192
Total Comments	7301
Stage Visitors	1212
Session Visitors	1322
Expo Visitors	458
Networking Visitors	617

Statistics on recorded videos

times loaded (shown on screen)	Type	name
9635	Full Session Video	N-28_Nuclear_and_High_Energy_Physics_3
9418	Full Session Video	M-13-X-ray_CT_and_Other_Imaging_Technologies
9241	Full Session Video	M-14-Imaging_in_Radiation_Therapie
9225	Full Session Video	N-29-Inorganic_Scintillators_3-Applications
9219	Full Session Video	N-31_Computational_Techniques
9173	Full Session Video	N-27_Nonproliferation_National_and_Homeland_Security_3
8326	Full Session Video	M-10_Corrections_for_Quantitative_PET
2016	Tutorial	exhibitor_expo_only
1952	Tutorial	chair_session
1949	Single Video	SC-6-03_Hamid_Sabet
1946	Single Video	SC-6-02_Chao_Ma
1943	Tutorial	chair_plenary
1942	Tutorial	exhibitor_expo_session
1941	Tutorial	attendee
1936	Tutorial	speaker_plenary
1933	Tutorial	speaker_oral_poster
889	Single Video	IEEE 2020_SC-7_2448
662	Exhibitor	ieeee2020_exhibitor_scintacor
618	Exhibitor	ieeee2020_exhibitor_scionix_silicon_pm
553	Single Video	IEEE 2020_SC-6_2442
523	Exhibitor	ieeee2020_exhibitor_scionix_high_resolution
496	Exhibitor	ieeee2020_exhibitor_scionix_company_presentation
463	Exhibitor	ieeee2020_exhibitor_xglab
447	Full Session Video	M-05_High_Resolution_Imaging_Systems
437	Full Session Video	M-20-02_2489_Video - MIC Closing - Lecomte
432	Full Session Video	M-07_Tomographic_RECONstruction_Methods_2
422	Full Session Video	N-33 - Organic Scintillators 2
419	Exhibitor	ieeee2020_exhibitor_xia
410	Full Session Video	JS-3_Joint_Session_NSS_MIC_RTSD
404	Full Session Video	M-01_New_Radiation_Detector_Technologies_for_Medical
401	Full Session Video	JS-2_Joint_Session_NSS-MIC_2
394	Exhibitor	ieeee2020_exhibitor_photek
388	Full Session Video	MP-2-MIC_Plenary
366	Full Session Video	M-09_Parametric_Imaging_and_Kinetic_Modeling
366	Full Session Video	N-32_DAO_Trigger_and_Front-End_Electronics_Systems_3
357	Full Session Video	N-34-DAQ_Trigger_and_Front-end_Systems_4
321	Exhibitor	ieeee2020_exhibitor_oxide_scintillation
320	Single Video	IEEE 2020_N-02_1412
320	Full Session Video	M-06_New_Radiation_Detector_Technologies_for_Medical_Image
319	Single Video	IEEE 2020_M-03_1012
316	Single Video	IEEE 2020_N-01_2256
309	Single Video	IEEE 2020_N-01_1247
309	Exhibitor	ieeee2020_exhibitor_photek_neutron_application
305	Full Session Video	JS-01_Joint_Session_NSS-MIC_1
301	Single Video	IEEE 2020_M-03_1290
299	Full Session Video	M-20-01-01_2488_Brian Hutton Student awards Brian-Hutton
298	Full Session Video	N-36-Analog_an_Digital_Circuits_fast_timing_and_readout

Feedback



<https://nssmic.ieee.org/2020/>



I just finished chairing a session this morning, and I wanted to convey how well the conference has gone virtually!

I found the app excellent, the discussions very active and the poster sessions got a lot of positive reviews. A great model of virtual conference.

Thank you for doing such a great job, in a time of uncertainty and so much change

First of all, Thank you for organizing the NSS/MIC online conference!

Dear Sir or Madam, year – well done!

Congratulate that the NSS-MIC 2020 conference is successfully held online, and thanks for offering the online platform for attendees to share our works.

Thank you so much. Thank you all for the fantastic conference.

The conference was organized pretty well. This is the first time for me to join this conference. It was a little bit new to me as it was more about physics and less about medicine, but I still enjoyed it.

Thank you for your hardwork and thank you for giving me a chance to join this conference.

I wanted to congratulate you for the excellent work and for having given us a week of flashing scientific live!

I just finished chairing a session this morning, and I wanted to convey how well the conference has gone virtually!

I found the app excellent, the discussions very active and the poster sessions got a lot of positive reviews. A great model of virtual conference

Thank you very much for a fantastic NSS/MIC conference

Thank you for doing such a great job, in a time of uncertainty and so much change.

First I would like to thank you for the great conference. It was a unique experience!!

Thanks very much for the conference and the good organization. It was really a success to present this online.

First of all, I thank you for the high quality of the organization

IEEE NSS-MIC 2020 despite the virtual constraints

I wanted to congratulate you for the excellent work and for having given us a

week of flashing scientific live!

EH Erik Heijne, an hour ago
Nice work, did you try to identify the types of addressable receptors? How is their temperature dependence?

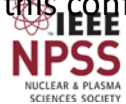
SS Sara Pozzi (she/her) 29 minutes ago
Please enter your questions for Dr. Ritt here

SS Sara Pozzi (she/her) 29 minutes ago
Please enter your questions for Dr. Pospisil here

FR Frank Ruddy 15 minutes ago
A wonderful presentation. Thank you, Stanislav!

LB Great Conference Lorenzo & Ralf!
3 minutes ago

FR Frank Ruddy 13 minutes ago
Thank you to all of the organizers for your hard work. The virtual platform performed well, and the few technical problems were resolved quickly. Most importantly, the virtual platform retained much of the feel of an in-person meeting. Congratulations on an extraordinarily successful conference under extremely challenging circumstances!

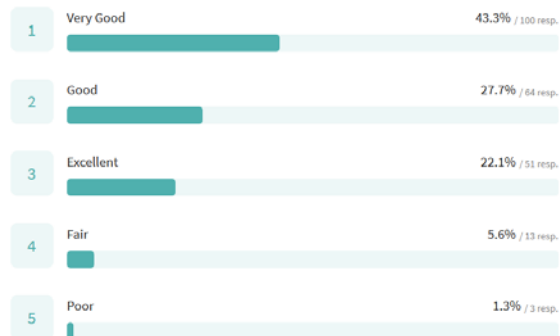


Questionnaire Feedback

231 answered

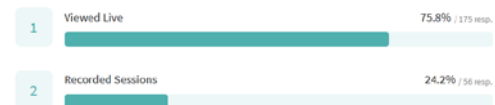
How would you rate the overall experience of attending the IEEE NSS MIC 2020 conference?

231 out of 231 answered



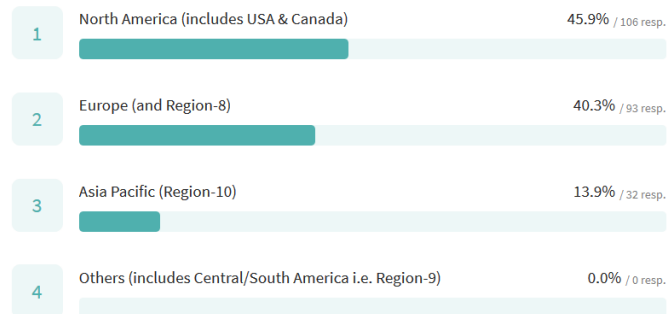
Did you **attend the majority of the meeting** "live", or, did you view a majority of the "recorded presentations"?

231 out of 231 answered



From which part of the world (region/continent) did you attend the meeting?

231 out of 231 answered



For the 2020 NSS MIC, do you feel that registration costs were a barrier for any of your colleagues to attend the conference?

231 out of 231 answered



Summary



<https://nssmic.ieee.org/2020/>



Arguments for a virtual conference

Pros

- ▶ Easier to attend with reduced fees and less time consuming
- ▶ No one will miss any session due to providing video recording of all sessions
- ▶ Less presenter last minute changes due to problems e.g., travel restrictions
- ▶ Lower registration fee
- ▶ No risk for conference or Society in making contracts for hotel, conference space or F&B
- ▶ Less work for the committee during the conference week
- ▶ Better statistics for the organizers
- ▶ People from low-income countries are more able to attend

Arguments for a virtual conference

Cons

- ▶ No socializing, like coffee breaks, dinners or receptions
- ▶ Missing personal contacts during breaks or dinners; networking
- ▶ Easier to have a live discussion during onsite poster session
- ▶ Better contact with Exhibitors and to see or touch products
- ▶ Less \$ return for the Society

Could Hybrid be the future

Pros... and there is more ...

- ▶ Maybe more will register from another community
- ▶ Online attendees, whatever number, do not have impact on the onsite organization -> money maker
- ▶ Virtual is an advantage; one does not need to travel or be away from his home / institution
- ▶ Onsite attendee has to pay more for the socializing and easier networking
- ▶ Easier to find possible sites because we have less space requirements, F&B, etc...
- ▶ More \$ return for NPSS
- ▶ Due to recorded sessions even the onsite attendee will benefit by being able to view any session

Could Hybrid be the future

Cons... and there is more ...

- ▶ More work during the conference due to recording, preparing and providing of the videos in a timely manner
- ▶ Webinars are needed in addition for outside speakers
- ▶ Hard to estimate for onsite logistics like space or F&B
- ▶ A virtual registration fee of 70% might discourage people to register
- ▶ Most expensive way to run a conference
- ▶ Other deadlines needed (e.g., earlier for better planning/reservations)

To think about

Hybrid Style

- ▶ Can we make the conference week shorter by skipping Short Courses and just do them online
 - This reduces rates and costs
- ▶ Reduce onsite poster sessions and make them all Orals
- ▶ Can we reduce live orals onsite
- ▶ Do we need Exhibitor booths or just the Exhibitor Technical Sessions

Hybrid will be the future, the question is how to run it !!!

Summary

Learned ...

- ▶ Virtual Conference offered new possibilities
- ▶ Attract more students and early career
- ▶ Easy to navigate in the online system
- ▶ No APP needed to be installed; just latest Chrome/FF or MS Edge
- ▶ Technology was easy going, only minor issues appeared; EC & SE did a great job
- ▶ Post videos and material availability were well appreciated and used until mid December
- ▶ Live Poster Session has less traffic and interest; even with a chat room for each poster
- ▶ Exhibitor separation into two tools was not best, better instructions for exhibitors are needed
- ▶ Feedback was very positive, but in person has its advantages
- ▶ Requested return of more than 15% is possible (not all 2020 payments or income are known)

Questions?

