Inhoudelijk jaarverslag 2022

2022 was weer een grotendeels normaal jaar voor Platform Wiskunde Nederland, maar bestuurs- en commissievergaderingen vonden grotendeels online plaats, de nieuwe manier van werken. In dit jaarverslag over 2022 zullen we kort ingaan op een aantal belangrijke activiteiten, gerangschikt naar zaken welke speelden in het bestuur, bij het Bureau PWN en in de commissies.

Bestuurlijk

Richard Boucherie had in maart 2021 het stokje overgenomen als voorzitter van PWN, daarnaast waren Barry Koren (KWG) en Michiel Doorman (NVvW) bestuursleden. De frequentie van vergaderingen met instituutsdirecteuren werd opgevoerd teneinde zaken in meer detail te kunnen bespreken, daarnaast waren er 8 reguliere bestuursvergaderingen, o.a. mogelijk gemaakt door de nieuwe online vergadercultuur. Belangrijke punten waren het nationale plan wat door PWN aan de instituutsdirecteuren werd gepresenteerd, en het organiseren van vergaderingen met commissievoorzitters, belangrijk voor de interne communicatie. In november 2022 vond een tweedaagse bijeenkomst plaats tussen bestuursleden en commissievoorzitters teneinde de elementen van het nationale plan verder uit te werken. Wiskunde neemt geen deel aan Sectorplan Beta & Techniek II, maar er vonden wel gesprekken plaats met de Sectorplancommissie en de kwartiermaker. Hoog op de agenda stond het lerarentekort. PWN werd ook uitgenodigd om in 2023 bij de Betadecanen uitleg te komen geven over de plannen. Belangrijk was ook een nationaal gedragen voorstel voor een SUMMIT (eerder: Toponderzoek) voorstel, dat in 2023 verder uitgewerkt zal worden.

Bureau

Evenals in de afgelopen jaren was het Bureau van PWN vooral uitvoerend bezig, o.a. met een aantal taken uit het Deltaplan. Zo speelde het wederom een rol in de organisatie van NMC 2022, hetgeen ditmaal gelukkig weer ''in person'' gehouden kon worden in het Van der Valk hotel te Utrecht. Een van deze activiteiten betreft de ''what's cooking'' sessies, waarin PWN korte overzichten van meldenswaardige feiten geeft.

Het bureau verzorgt achter de schermen van PWN veel activiteiten, soms zichtbaar en vaak onzichtbaar; een aantal van deze zaken wordt genoemd onder de activiteiten van de commissies. Het bureau bereidt voorts de bestuursvergaderingen voor, inclusief de jaarlijkse vergadering(en) met de instituutsdirecteuren, en verzorgt hierbij het overzicht van ontplooide activiteiten. Sinds 2017 heeft het bureau ook een aantal van de activiteiten van de wiskundige onderzoeksschool WONDER overgenomen, t.w. sponsoring van evenementen. Hiertoe zijn in 2022 weer een aantal activiteiten ondersteund. De webpagina (www.platformwiskunde.nl) is het centrale punt, is actief betreffende nieuwsfeiten (vrijwel elke week), daarnaast is er een LinkedIn groep en een Twitter account. De PWN

Nieuwsbrief wordt met een frequentie van eens per 2 maanden verzonden.

Bureau PWN speelde ook weer een rol in het stimuleren van indieners naar aanleiding van de Outreach call in het kader van het Sectorplan Bèta en Techniek. De namens de wiskunde ingediende plannen deden het goed in 2022, zowel het voorstel rondom Pythagoras als dat rondom Imaginary werden gehonoreerd.

Het Bureau is ook verantwoordelijk voor de Vakantiecursus voor Wiskundeleraren, welke elk jaar eind augustus plaatsvindt in zowel Eindhoven als Amsterdam. In 2022 was Nelly Litvak de hoofdspreker, en de geluiden achteraf waren allemaal zeer positief. Er zijn contacten gelegd met Vlaanderen, zodat de VC 2023 ook aldaar (in Antwerpen) kan plaatsvinden.

Vanaf juni 2022 startte ook de rondreis van een nieuwe editie van de tentoonstelling Imaginary, ditmaal rondom het thema ''pracht en kracht van wiskunde''. Samen met de collega's van Platform Wiskunde Vlaanderen is een prachtige tentoonstelling ontworpen, welke in 2023 nog in 4 steden in Nederland te zien zal zijn. Bureau PWN was de initiator en organisator van dit geheel.

Commissie Onderzoek

De belangrijkste werkzaamheden van de commissie (DB-CO c.q. de Tafel Wiskunde) in 2022 betroffen de adviezen omtrent input voor midterm review van sectorplan Bèta- en Techniek, op basis van input van hele PWN CO, aan Sectorplancommissie Bèta- en Techniek (SBT), alsmede *Mathematics in the NWO Science Domain* , een update van de 2020-versie die i.o.m. hele PWN CO is opgesteld, aan bestuur van NWO-domein ENW. Daarnaast was er een aantal adviezen in reactie op ENW-brede adviesvragen, aan bestuur van NWO-domein ENW, en een advies aan tafel Natuurkunde en bestuur van NWO-domein ENW, omtrent M-invest (verzoek om advies over invest optie in de ENW Open Competitie M). Voorts voerde de commissie verschillende gesprekken met verschillende organisaties binnen en buiten PWN, zoals bijvoorbeeld voor de ENW-strategiedag over NWA/KIC (DB-CO met bestuur van NWO-domein ENW, ENW-adviestafels, NWO-voorzitter e.a., 7 nov '22)

Commissie Onderwijs

De commissie vergaderde in 2022 vijfmaal, de voornaamste aandachts- en actiepunten betroffen het beroepsprofiel van wiskundeleraren, vakvernieuwing vmbo, vakvernieuwing voor wiskunde in de bovenbouw van havo en vwo en een artikel in Euclides over kansengelijkheid in de wiskundeles. Op 24 mei vond er een avond plaats bij de KNAW omtrent wiskunde en statistiek in het voortgezet onderwijs. Een notitie over wat het wiskundecurriculum in het vo kan bijdragen aan digitale geletterdheid werd afgerond en aangeboden aan SLO. Een notitie over het lerarentekort werd besproken met de Wiskunderaad, het PWN-bestuur, de PWN-commissie Onderzoek en de Onderwijsraad; begin 2023 volgt nog een gesprek met de betadecanen. Punten van aandacht zijn o.a. manieren om met het lerarentekort om te gaan en de inrichting en positionering van de universitaire lerarenopleidingen. Tenslotte werd ook het punt serviceonderwijs opnieuw ter hand genomen. De commissie gaat begin 2023 een enquête uitzetten onder de universitaire wiskunde-instituten over het serviceonderwijs en over hun relatie tot de universitaire lerarenopleidingen.

Commissie Innovatie

De commissie innovatie van PWN brengt bedrijven en wiskundigen uit universiteit, HBO en bedrijfsleven intensiever bij elkaar. Ze geeft daarmee invulling aan actie 18 van het Deltaplan Wiskunde: “Bruggen naar bedrijven”.

2022 is voor de Commissie Innovatie een jaar van grote veranderingen geweest. Per 1 januari 2022 zijn veel van de traditionele activiteiten van de Commissie Innovatie (SWI, de LinkedIn-pagina, de college-tours) ondergebracht in een aparte organisatie (Math4NL) die bedoeld is om deze activiteiten professioneler uit te voeren. Dat betekent wel dat de commissie in 2022 een nieuwe invulling aan haar taken heeft moeten vinden.

Daarnaast is er een grote verandering geweest in de bezetting van de commissie. De vorige voorzitter (Vivi Rottschäfer) is zich gaan toeleggen op Math4NL, wat niet te combineren was met het voorzitterschap. Ook commissielid Alessandro di Bucchianico heeft de aandacht verlegd naar Math4NL. In totaal namen 4 van de 8 leden van de Commissie begin 2022 afscheid als (actief) lid.

Mark Roest heeft zich bereid getoond om voorlopig de nieuwe voorzitter te zijn. Hij heeft 2022 vooral willen gebruiken voor het vinden van nieuwe leden en een bezinning op de taken en werkwijze van de commissie. Eind 2022 stond de commissie er weer goed voor. Er is een sterke en actieve groep leden, er is voldoende helderheid over de rol die de commissie moet spelen en er is een ambitieus actieplan voor 2023.

De activiteiten van Math4NL worden nader beschreven in het jaarverslag van PWN.

Commissie Publiciteit

De commissie kwam in 2022 drie keer bij elkaar, waarbij ook de directeur PWN aanwezig was en ondersteuning verleend wordt door Sjoukje Talsma. Enkele speerpunten:

- *Succesformules in beeld*. Inmiddels zijn er 6 videos gemaakt (in de 'geest' van het boekje Succesformules), deze brengen de wiskunde letterlijk in beeld. In november 2022 werd een werkgroep gegeven tijdens de studiedag van de Nederlandse Vereniging van Wiskunde Leraren, en daar werd vooral om feedback gevraagd bij enkele opdrachten die inmiddels zijn ontwikkeld langszij de video's, dit om het gebruik van de video's in de wiskundelessen havo/vwo te faciliteren. https://platformwiskunde.nl/voor-het-vo/succesformules-in-beeld/
- *Agenda en wiskunde persdienst*. Door de samenwerking binnen PWN (met KWG, NVvW, ELWIeR lerarenopleidingen, CWI, Euclides, etc.) is er een traditie ontstaan om elkaar wederzijds te informeren over alle activiteiten op het gebied van wiskunde. Dit wordt o.a. ondersteund met behulp van de Wiskunde Persdienst. https://www.wiskundepersdienst.nl/ Een nieuw plan voor 'verrijking' van de website/diensten van PWN, werktitel 'WiskundeKracht', wordt momenteel ontwikkeld.

De activiteit omtrent wiskunde actueel, artikelen over wiskunde, werd in 2022 stopgezet. Wel was er weer de jaarlijkse actie om leerlingen met een 10 voor wiskunde op het eindexamen in het zonnetje te zetten.

Commissie Publicaties

De twee voornaamste aandachtspunten van de commissie zijn open access en het reilen en zeilen van de Nederlandse wiskundepublicaties. In maart 2022 verscheen van de commissie in Nieuw Archief voor

Wiskunde het artikel "Steps towards openness and fairness in scientific publishing". Daarin wordt advies gegeven over hoe wiskundigen de regels van PlanS (waar NWO en ERC zich aan houden) makkelijk kunnen naleven en er wordt kort uitleg gegeven over wat open access inhoudt. Het benadrukt ook nogmaals de scheve verhoudingen tussen commerciële uitgevers en de wetenschap. Onderzoekers worden aangespoord actie te ondernemen om onze resultaten op een eerlijke en open manier beschikbaar te maken aan de samenleving en om het hier met collega's over te hebben. Dit laatste naar aanleiding van een verassend empirisch onderzoek dat suggereert dat veel onderzoekers het eens zijn met de stelling dat er iets moet veranderen in hoe er gepubliceerd wordt, maar tegelijkertijd denken dat hun collega's daar anders over denken.
De commissie heeft op 15 juni 2022 in Amsterdam een bijeenkomst georganiseerd met vertegenwoordigers van Nederlandse wiskundepublicaties en -organisaties.
De commissie heeft open access als een van haar hoofdonderwerpen, en dan met name Diamond Open Access. Ze zal adviezen uitbrengen aan KWG in de loop van 2023.

EWM-NL
Het uitgebreide jaarverslag is te vinden aan het einde van dit jaarverslag.

Wiskunderaad
De volgende onderwerpen stonden in 2022 op de agenda van de Wiskunderaad:

- *Selectie PWN ambassadeurs uit het bedrijfsleven*. Rond de Wiskunderaad is een groep van ambassadeurs van de wiskunde samengesteld, elk met sterke banden met het bedrijfsleven. Deze ambassadeurs worden vooral ingezet bij concrete strategische vraagstukken richting overheid, politiek en bedrijfsleven.
- *Bijdragen aan het opstellen van een nieuw nationaal strategisch plan voor de wiskunde*. In 2022 sprak de Wiskunderaad met verschillende partijen over een nieuw nationaal strategisch plan voor de wiskunde als vervolg op het sectorplan wiskunde.
- *Versterking van de rol van de wiskunde in nationale onderzoekprogramma's*. Minister Dijkgraaf heeft in 2022 een beleidsbrief "Hoger Onderwijs en Wetenschap Tweede Kamer" gepubliceerd. In deze brief worden voor de komende jaren aanzienlijke middelen beschikbaar gesteld ter versterking van de wetenschap. Hiervoor zijn verschillende instrumenten afgesproken. Samen met bestuur en bureau PWN heeft de Wiskunderaad besproken hoe de wiskunde gebruik zou kunnen maken van deze middelen.
- *Doordenking van de strategische positie van het CWI in de landelijke onderzoek infrastructuur.*
- *Nationale discussie over de rol van sectorplannen.* De Wiskunderaad besprak o.a. de IPN-visie en de plannen van IPN rond sectorplannen voor wiskunde en informatica. Er werden ideeën uitgewisseld over een voortzetting van de sectorplannen en een mogelijke samenwerking van wiskunde en informatica.
- *Ondersteuning van het nationale initiatief AIM*. De Wiskunderaad wordt regelmatig geïnformeerd over het initiatief AIM (AI & Mathematics) en heeft AIM in 2022 gesteund door een financiële bijdrage te leveren aan het AIM community event in december 2022.

Afsluitend

Na de lastige COVID-19 jaren 2020 en 2021 was 2022 weer een jaar met volop actie voor bestuur, bureau en commissie van PWN. Onder leiding van de nieuwe voorzitter werd de frequentie van vergaderingen opgevoerd, er stond een aantal belangrijke punten op de agenda, zoals het door de commissie Innovatie gestarte initiatief Math4NL. Daarnaast lukte het de commissie Publiciteit meerdere video's te maken voor het project ''Succesformules in beeld''. De Wiskunderaad opereert vanaf 2022 als zesde commissie van PWN, hetgeen ook de interne communicatie ten goede kwam. Discussies over een strategisch plan voor de wiskunde werden na de zomer geïntensiveerd, en we hopen hiervan de vruchten te gaan plukken in 2023. Daarnaast is er met belangrijke stakeholders gesproken, waarbij wiskunde uitermate goed op de kaart staat. Verder werden de banden met Platform Wiskunde Vlaanderen aangehaald, zowel voor de rondreizende tentoonstelling Imaginary als de vakantiecursus voor wiskundeleraren.

Zoals eerder aangegeven zal een uitgebreider en gedetailleerder jaarverslag in april door PWN worden gepubliceerd.

ANNUAL REPORT 2022

Introduction

Our objective for 2022 was to reconnect totally live with our community, since the COVID epidemic had impeded this in past years. As a result, we arranged a number of in-person events, such as actions during the Netherlands Mathematical Congress, the Annual Meeting, and a Media Training Lecture. We also kept up with our ongoing projects, such as the mentoring network, the Wikipedia project, the monthly newsletter, and the grant program. A key priority continues to be outreach, including active interaction and exposure on our social media, the STEM campaign, and Her Mathematics Story. Inspired by a poster on Prominent Women in Computing, EWM-NL gathered suggestions for a poster on Women in Mathematics, which went on a globe tour at Mathematics Departments and was translated into more than 15 languages.

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Events organisation

Workshop: "A PhD, is that for me?"

EWM-NL sponsored a workshop targeted to MSc students. See the Appendix for a detailed report. A news article on Leiden University's website about the event was published here.

NMC participation

EWM-NL participated in the National Mathematics Congress 2022 on 19 April 2022. EWM-NL was represented by its president, Maria Vlasiou, who presented the activities of the association in 2021 and tentative plans for 2022. The invited speakers to the session were: Natasha Jonoska, also a keynote speaker at NMC, Shafi Goldwasser, who also gave the Beeger lecture, and Karen Aardal, also invited by the DIAMANT cluster.

Clara Stegehuis interviewed the women keynote speaker Natasha Jonoska for Nieuw Archief voor Wiskunde (a quarterly magazine of the Royal Dutch Mathematical Society).

CWM Ambassadors Global Meeting

A board member of EWM-NL represents the Netherlands at the Committee for Women in Mathematics (CWM) of the International Mathematical Union (IMU). In 2022, Maria Vlasiou represented both the Netherlands, and Europe at CWM and IMU.
The CWM Ambassadors Global Meeting (CWMAGM) took place (virtually) on Feb 11 from 2 to 5 pm CET. The programme of the meeting was as follows:

1) Opening
2) Initiatives reported by CWM ambassadors for the day of the Women and Girls in Science, 11 Feb 2022
3) Presentation by continents of the CWM ambassadors in each country and of the continental Ambassadors meeting held in 2021:
    a. Anne Hanwa for Africa,
    b. Carolina Araujo for Americas,
    c. Motoko Kotani for Asia and Oceania,
    d. **Maria Vlasiou** for Europe
4) Panel discussion: Strengthening mathematical interaction between female mathematicians from all over the world
    Panellists:
    - Africa: Nadia Raïssi (Maroc)
    - America: Matilde Lalin (Canada)
    - Asia and Oceania: Kyewon Koh Park (Korea)
    - Europe: Alessandra Celletti (Italy)
5) Discussion on a text guiding CWM ambassadors' activities

In her presentation, Vlasiou gave an overview of continental, national, and thematic organisations and initiatives, the relative outreach of EWM and CWM on the continent, the (lack of) numbers of women mathematicians in Europe, continental projects and meetings related to women in mathematics, and examples of activities nationally in Norway, Romania, and the Netherlands.

Annual meeting

The annual meeting with the theme *Mathematics & Art* took place on September 16 2022, 13:00–17:00 at VU Amsterdam. It attracted 47 participants from Dutch Universities, Research Institutes, NWO, and the Netherlands Defence Academy.

The annual meeting event showcased work done by women mathematicians around this topic. The program also included an update on the EWM-NL board on activities in the past year and plans for the upcoming year, as well as discussions on the topics of visibility, networking and hiring. The speakers were:

- Anja Volk (Universiteit Utrecht), **Musical patterns in musical interactions: modelling repetition in music**
- Rianne de Heide (VU Amsterdam), **Sounding geometry**
- Dzemila Sero (CWI Amsterdam), **Imaging in cultural heritage: from objects to marks**

The discussions among the participants on the topics of visibility, networking and hiring led to a few suggestions for action points to EWM-NL: workshop idea on how to make a professional website, better advertising the mentor program, publishing a list of academic jobs on the EWM-NL website, to name a few. The organizers of the annual event were Babette de Wolff and Svetlana Dubinkina.

Media training lecture

The lunch lecture *Communicating science in the age of populism* took place on March 9, 2022, 12.45h (online).

The lecture was given by trainer Michel van Baal, who has experience with giving over 500 media and interview trainings to scientists. A rocket scientist by training, he continued as press officer and head of internal and external communication at TU Delft and is head of Communication and Public Affairs at the federation of doctors KNMG. In December 2021, he gave two media trainings to EWM-NL members. The participants were very enthusiastic about the training, so we were happy that Michel van Baal agreed to give an online lunch lecture to reach a larger audience than the small-scale workshop.

The abstract: With populism rising, communicating science is increasingly becoming difficult. And sometimes unsafe. What should be a discussion on arguments tends to become a question of integrity, and also scientist, judges and journalists are increasingly under fire. In his lunch lecture Michel van Baal will explain the populistic communications mechanism at work and which dirty tricks are sometimes used. As he says: “I don’t know the ultimate answer to this problem, but I might help you to recognize and understand it better”.
To enter the workshop, pre-registration was required. 96 people registered to receive the zoom-link and during the lecture around 60 people attended. After the presentation there was a lively question and answer session, which showed the active participation and interest of the participants. The event was organized by Francien Bossema.

Projects

Number of women in mathematics

EWM-NL has been collecting data on the number of women working as scientific staff in mathematics departments and institutes in the Netherlands. From 2021, this effort is coordinated by NWO in their capacity of supporting the Wiskunderaad, and the data is shared with EWM-NL. From the 12 organisations asked, 11 provided the information requested and 1 gave no answer. The aggregated data at the end of 2021 from those departments are as follows:

Rank	%women	%men	%fte women	%fte men	fte/# women	fte/# men
Full professor	10,9%	89,1%	10,6%	89,4%	80,8%	82,8%
Associate professor (tenured)	16,3%	83,7%	15,4%	84,6%	84,4%	90,6%
Assistant professor (tenured)	22,9%	77,1%	23,9%	76,1%	97,1%	91,7%
Tenure track positions	33,9%	66,1%	35,4%	64,6%	97,2%	90,7%
Postdoc	25,0%	75,0%	25,4%	74,6%	98,4%	96,6%
PhD	22,4%	77,6%	22,0%	78,0%	89,8%	91,5%
Assistant professor aggregate	27,6%	72,4%	28,9%	71,1%	97,2%	91,3%

Wikipedia project

EWM-NL continued the Wikipedia project to add, extend, and translate pages of (mostly) women mathematicians that was initiated in 2021. The project was run by Anne-Men Huijzer and Maria Vlasiou, with the contribution of several volunteers and Wikipedia editors. In December 2022, EWM-NL concluded the Wikipedia project on its part and from January 2023 the Wikipedia project is coordinated by a volunteer Hester Bremen.

Pages added

Ute Ebert, Ruth Curtain (NL)(RUS), Tanja Lange, Nelly Litvak (NL)(RUS), Margot Gerritsen (NL)(RUS), Gianne Derks (IT) (NL), Rineke Verbrugge, Maria Vlasiou, European Women in Mathematics, Renate Loll (IT) (NL), Caroline Series, Kirsten ten Tusscher, Jeanine Daems, Bas Edixhoven, Jacquelien Scherpen, Maria Wonenburger, Alice ter Meulen, Claire Voisin, Julia Robinson, Anneli Cahn Lax (IT) (NL), Marina Ratner (IT) (NL), Olga Arsenievna Oleinik, Karen Veroy-Grepl, Maria Hasse, Pamela Habibovic (IT)(NL), Assia Mahboubi, Ulrike Tillmann, Nira Chamberlain, Eugenia Cheng, Mihaela van der Schaar, Constance van Eeden, Stéphanie van der Pas.

Pages extended

Ietje Paalman-de Miranda, Ingrid Daubechies, Tatjana Pavlovna Ehrenfest, Denise Mutzenberg, Katalin Kariko.

Mentor network

In 2022, two new mentees enrolled in the mentor network of EWM-NL. All the enrolled mentees got successfully coupled to a mentor. The Mentor network was run by Anne-Men Huijzer until September and then by Palina Salanevich.

STEM campaign 2022: Seeing is believing

The word "STEM" stands for "Science Technology Engineering Mathematics". Given the support of our community for our STEM campaigns in 2020 and 2021, we decided to run this tradition further. The participation of our members and the engagement with our social media was significant: **on a single post for the STEM campaign, we reached 17,945 impressions on Twitter (also thanks to SIAM account – 19.2K followers) and 2,828 on LinkedIn. We reached many new followers for the whole duration of the STEM campaign thanks to the network of each participant.** Thus, in 2022, we initiated a new STEM campaign under name "Seeing is believing". The project was run by Dzemila Sero.

We believe that representation matters at any level; therefore, it was important to structure the campaign as by asking participants consent to share an image of themselves with a quote that justifies their love and passion for STEM subjects. The total number of participants was 22, including 1 Master student, 7 PhD students, 3 postdocs, 5 assistant professors, 1 tenure track, 3 full professors, 1 senior investment associate, 1 research scientist. Most of the participants work in the Dutch academia (13), 4 in Switzerland, 1 in Austria, 1 in Italy, 1 in South Africa, 1 in UK, 1 in Suriname. Furthermore, the STEM campaign led to more EWM-NL followers on the Social Media platforms thanks to the network of each participant. Dzemila Sero created the website page for the STEM campaign event on the EWM-NL website and kept it updated. The link to the campaign can be found on EWM-NL webpage here.

Women who joined our STEM campaign 2022:

Silvia Pagani, Assistant Professor in Geometry at Catholic University of the Sacred Heart, Brescia, Italy
Mildred S. Cano-Velázquez, Postdoctoral researcher at Eindhoven University of Technology
Rufaro Kanganga, 2nd year Master student in Information Systems Rhodes University (South Africa)
Lynda Hardman, Professor University of Utrecht, Senior Researcher CWI, Manager of Research & Strategy CWI, Director of Amsterdam Data Science, European Director of LIAMA
Aurélie Carlier, Assistant Professor at MERLN Institute
Maria Vlasiou, part-time Full Professor at University of Twente and part-time Associate Professor at TU/e Eindhoven
Diletta Martinelli, Assistant Professor at the University of Amsterdam
Marta Pieropan, Assistant Professor at Utrecht University
Wiebke Albrecht, AMOLF as tenure track group leader
Laura Cossu, Marie Curie postdoctoral fellow, University of Graz (Austria)
Dzemila Sero, Postdoctoral researcher at Centrum Wiskunde & Informatica

Ninouk Akkerman, PhD candidate at the Clevers group (Hubrecht Institute)
Shanti Venetiaan, Suriname's first Professor of the Faculty of Mathematics and Physical Sciences of the Anton de Kom University of Suriname
Martina Celotti, PhD candidate at the Clevers group (Hubrecht Institute)
Rupsa Basu, PhD candidate at University of Twente
Francien Bossema, PhD candidate at Centrum Wiskunde & Informatica and Rijksmuseum
Caoimhe Rooney, Research Scientist at NASA Ames Research Center, PhD at University of Oxford
Rianne de Heide, Assistant Professor at Vrije Universiteit Amsterdam
Seraphine Zhang, PhD candidate at the Department of Chemistry and Applied Biosciences at ETH Zurich.
Emma Schepers, Senior Investment Associate at Verve Ventures, previously MSc in Physics at ETH Zurich.
Elisa Bäumer, PhD in quantum information theory at ETH Zurich.
Larissa Boie, PhD in Physics at ETH Zurich.

Poster Women in Mathematics

Inspired by a poster on Notable Women in Computing, EWM-NL collected ideas for a poster on Women in Mathematics. The material was prepared in 2021 by a joint Dutch and UK team comprising Silvy Hendriks, Houry Melkonian, and Maria Vlasiou, who conceived the project. The poster was designed by Jana Kleinberg.

Limited by space, but not by the plethora of talented mathematicians to choose from, the poster gives an impression of women mathematicians from ancient times until now. As is evident by the 2022 Fields Medals, our poster is already running behind the facts. Yet, we hope that it is informative and engaging!

The poster has been translated into 17 languages as of now and currently is being translated into another 15 languages under coordination of Maria Vlasiou.

The poster is a part of the Imaginary exhibition and the Imaginary exhibition booklet thanks to Clara Stegehuis. The exhibition showcases the link between mathematics, AI and art. It features work of several Dutch women in mathematics, as well as the poster of Women in Mathematics.

Maria Vlasiou, on behalf of EWM-NL, is currently coordinating the dissemination of the poster to schools of secondary education throughout the world.

Outreach

Getting started in outreach

For those who are interested to start an outreach activity but does not know where to begin, we have collected a list of possibilities dependent on a language preference and availability. Clara Stegehuis is the EWM-NL contact person for those who wants to know more about getting started in outreach. Do you like science communication? Here are some ways in which you can start:

- Through Skype a Scientist you can connect with classrooms all over the world. After you have signed up, you will be matched with a classroom somewhere in the world. Over Skype, you can then tell something about yourself and your work, followed by a Q&A.
- Become a VHTO role model (Dutch speaking). VHTO is the Dutch expertise center for gender diversity in STEM. You can become a 'role model', a person who will meet girls in high school or primary school in one of their organized activities, such as guest lessons, speed dates or mentoring.
- Contact one of the Wetenschapsknooppunten near you (often Dutch). These 'knooppunten' are places where universities collaborate with high schools and primary schools nearby. Depending on the region, they organize several activities where scientists and children meet and interact.

EMW-NL column in Nieuw Archief voor Wiskunde

EWM-NL in collaboration with Nieuw Archief voor Wiskunde (a quarterly magazine of the Royal Dutch Mathematical Society published for its members) writes an EWM-NL column, in which Clara Stegehuis and Francesca Arici interview women mathematicians working in the Netherlands. Women who got interviewed by Clara and Francesca were Diletta Martinelli, Sophie Huiberts, and Elena Pulvirenti. The interview of Shanti Venetiaan conducted by Dzemila Sero and Diletta Martinelli.

Her Math Story

EWM-NL initiated a collaboration with Her Math Story – a freely available platform that shares stories of women in mathematics with the goal of encouragement and support from role models to study mathematics. *Motivated by the lack of women role models, Her Maths Story strives to bring light to the variety of careers, non-linear paths and individual decision-making processes of women mathematicians in today's society* (Joana Grah, Tamara Grossmann, Julia Kroos, Her Maths Story – Sharing stories of women in mathematics in all walks of life. Eur. Math. Soc. Mag. 122 (2021), pp. 55–56, DOI: 10.4171/MAG/53). EWM-NL interviewed the following women for Her Math Story:
Shanti Venetiaan (by Dzemila Sero and Diletta Martinelli), and Sophie Huiberts (by Clara Stegehuis, initiator of the collaboration).

Sponsoring national mathematics Olympiad

The Benelux Mathematical Olympiad took place in Leuven (Belgium) from April 29 until May 1, 2022. EWM-NL awarded the top two girls a small prize. The top two girls were:

- Zhichang Chen from Belgium was overall winner with a full score (28 points) and (hence) a golden medal. An amazing result, she was the only participant with a full score!
- Louise Bernier from Luxembourg (next female participant) earned 7 points and a honourable mention.

On Friday, November 11, 2022, the award ceremony of the Dutch Mathematical Olympiad 2022 took place in the Auditorium of TU/e. At the finals on September 16 at TU/e, 142 participants

from all over the country competed for the prizes. There are five prize winners in each of the three categories: class 6, class 5, and classes 2, 3, 4. EWM-NL awarded the top three girls from each of the categories a small prize. The winners were:

- Wendy Huang (vwo 4)
- Allie Zong (vwo 5), also a silver medallist in the European Girls Mathematical Olympiad
- Lieke van Dam (vwo 6)

Connecting to other associations having the same goals

In 2022, EWM-NL initiated a connection with Women in Quantum Development (WIQD). Dzemila Sero attended a WIQD event and WIQD representatives were invited to the EWM-NL annual event. Babette de Wolff initiated a meeting with WIQD at which Svetlana Dubinkina, Babette de Wolff from EWM-NL and Mathilde Lemang and Judith Kreukels from WIQD discussed strategies to promote women in STEM. EWM-NL and WIQD agreed to promote one another's events via the corresponding social media. Furthermore, Dzemila Sero attended an Alice and Eve workshop celebrating women in computing at TU Delft on behalf of the EWM-NL and covered the event in the social media to promote women in STEM.

Social media

We, EWM-NL board members, strongly believe that our mission has to reach as staff members as possible. The most efficient and fast way of doing so is by social media platforms. Since Dzemila started as a social media manager in December 2021, our accounts have become more known to the public. Regarding Twitter, in November 2021 we had 2,191 impressions and a few followers per month. Just in December 2021 we had **14.5K impressions**, in February 2022 **34.6K impressions**, in January 2023 **32.2K impressions**! Regarding followers: in Twitter we have 410, on Instagram 177, LinkedIn 235 and 167 connections.

Our most successful posts have been the STEM campaign posts and the poster on Notable Women in Mathematics. **Posts on the poster of notable women in mathematics reached peaks of 378 likes and 191 retweets from the European Mathematical Society (12,256 followers), with particular mention for the like of Cedric Villani, Fields Medal in 2010.**

ESA (2.6Million followers on Instagram) liked and commented our feedback on their Instagram stories.

Communicating via these three social media channels is a task that has to be performed on a regular basis to keep the momentum and interest on our accounts, meaning that Dzemila had to retweet or re-share at least one post every day or two since she started in December 2021. LinkedIn is a professional platform: we prefer creating our own posts and sharing our own events, or maximum re-sharing job postings across Dutch academia.

We usually post about our events, or from sister organizations, job postings, exhibitions, math Olympiads, awards, NWO announcements, PWN announcements, etc.

Instagram works with photo-based content creation and video creation. We do not have enough content to create videos, nor an experienced video maker and editor in the board, mainly because we have only one live annual meeting per year. Also, we do not have a policy to ask someone from the board to join members' related events and take pictures or videos.

We do not have a TikTok channel for the moment, but we believe that opening one and actively using it would allow to reach a younger audience, for which we would ideally need another person.

Internal affairs

Board composition

The 2022 executive board comprised Olfa Jaibi, Dzemila Sero, Palina Salanevich, *Maria Vlasiou*, *Anne-Men Huijzer*, *Chayenne Olumuyiwa*, *Ivan Kryven*, *Francien Bossema*, **Svetlana Dubinkina, Babette de Wolff, Clara Stegehuis**, and **Jochem Hoogendijk**. The members in *italic* left the board in 2022 and the members in **bold** joined the board in 2022. Svetlana Dubinkina proposed her candidacy for the presidency which was accepted by the board. Since March 2022, Svetlana is the president of EWM-NL which she took over from Maria Vlasiou.

The advisory board comprises De Gunst, Rottschäfer, and Ellis-Monaghan.

Grants

Due to ongoing COVID-19 pandemics and national lockdowns, no grant applications were submitted in 2022.

Finances

In 2022 the pandemic was still ongoing which led to less events organized in person and no international speakers in the EWM-NL annual event.

Expense	Budgeted amount	Realisation	Notes
Board meetings	500	0	online meetings
EWM memberships	100	80	
Grants	1500	0	
Lunch with local representatives	0	0	
Website maintenance	0	0	
Promotional material	0	698,41	promotional bottles
Exhibition	0	0	
Gifts competitions	200	173,73	
Print and post poster Women in Mathematics	500	310	
Design poster Women in Mathematics	1000	500	
Wikipedia project	0	60,9	
Maths Day	400	302,5	

Annual meeting	2000	937,6	no international speakers
Workshop for MSc students on PhD studies	3000	2532,47	
NMC session	0	0	
PhD day event	0	0	
Other	0	134,06	farewell present to the president; travel costs
Total	**9200**	**5729,67**	

Appendix

A PhD, is that for me?

General:

The event *A PhD, is that for me?* took place on February 4 at the Minneartgebouw of Utrecht University and was live streamed. With this one-day event for students in both theoretical and applied mathematics.

Number of registrations: 148 in total; 73 in person in Utrecht and 55 via the live stream
Number of participants: 87 in total; 43 in person in Utrecht and 44 via the live stream
Unfortunately, due to the Corona pandemic we received many last-minute cancellations from students with Covid symptoms.
The event was organised by:

- Mia Jukić, MSc - Leiden University (initiator)
- Mar Curcó-Iranzo, MSc - Utrecht University
- Dr. Sanne Willems - Leiden University

Aims:

With this event, we aimed to:

- Showcase the benefits of doing a PhD and different career possibilities after obtaining a PhD degree in Mathematics.
- Help students to make their choice whether they want to apply for a PhD or not.
- Present role models to female students by highlighting the stories and experiences of women in mathematics in the Netherlands.

Programme:

Schedule overview:

10.00 – 10.50	Nelly Litvak, University of Twente
10:50 – 11:00	short break
11.00 – 11.45	Fieke Dekkers, RIVM
12.00 – 13.30	Parallel workshops: Impostor Syndrome (room upstairs) Outcomes of a PhD (plenary room)
13.30 – 14:30	Lunch break
14.30 – 15.15	Do's and don'ts when applying for a PhD

15.15 – 15.30	short break
15.30 – 16.45	PhD speakers
16.45 – 17.00	Closing
17.00 – 18.00	Drinks

Nelly Litvak:

The first speaker was Professor Nelly Litvak from Twente University. In her talk, she first shared how she became a professor in the Netherlands. Using the online tools, she asked multiple questions that students could answer. The students were very interested in participating, and we recorded more than 90 answers.

One of the questions that Prof. Litvak asked was: 'What are your doubts about joining academia,' and the answer that prevailed was 'I am not good enough.' Prof. Litvak then proceeded to elaborate on this issue and she spent the final part of her presentation talking about the feelings that academics might have that they are not 'good enough.' In the end, students could write their questions in the online app and vote for each other questions that they wanted Prof. Litvak to answer. We had an overwhelmingly big number of questions, which shows how the presentation was very engaging and exciting for the students.

Fieke Dekkers

The second speaker of the plenary session was Fieke Dekkers. Fieke obtained her PhD degree in the UK, and currently, she works in the RIVM (National Institute for Public Health and the Environment). She shared her personal experiences with her academic career and elaborated on stepping out of the traditional academic job. She also talked about how her PhD helped her to get her current position at the RIVM, and she showed the various projects she is currently working on at the RIVM.

Parallel workshops

After the plenary session we had a parallel workshop session that consisted of the *Impostor Syndrome Workshop* by Helene Propsma from The Diversity Company, and *The Outcomes of doing a PhD* by Chiat Cheong from PhD Power.

In the *Impostor Syndrome* workshop, Helene explained and defined the impostor syndrome notion and gave tips of how to recognise it (e.g. describing the different ways of manifestation of the syndrome through different personality traits) and advise on how to tackle it (e.g. talking about it with your environment). The workshop was pursued in a very dynamic way where everyone could share their thoughts and experiences in small and big groups. The students were very collaborative and enthusiastic about it.

In the *The Outcomes of doing a PhD* workshop, Chiat initiated a discussion on the non-scientific benefits of doing a PhD. During the one hour of collaborating in smaller groups, the students came up with many examples of beneficial and transferable skills.

Plenary workshop: Do's and dont's while applying for a PhD

It was organized by Martina Chrilius-Brucker and David Holmes from Leiden University. They have many years of experience reading students' applications for PhD and shared their advice on which important information to write in a cover letter and CV. As a preparation for this workshop,

Martina and David each wrote a cover letter for an existing online position, and they analyzed each other's letters in front of the participants.

PhD speakers

We finalized the day with a PhD session, in which we had four PhD students from each mathematical cluster giving a talk on why they chose to do a PhD and their research topics.
This session included talks by:

- Margareta Pagano (Leiden University) from DIAMANT
- Anastasiia Hraivoronska (TU Eindhoven) from NDNS+
- Anna Fokma (Utrecht University) from GQT
- Teodora Pandeva (UvA) from STAR

Each speaker focused on different aspects of a PhD life. Margareta shared the positive experiences she had as a master's student in the algebra group in Leiden, which motivated her to do a PhD. Anna Fokma made a chart on how she applied for multiple PhD positions and the daily activities of her job. Anastasiia shared her story from the perspective of a student applying from abroad. The session was closed by Teodora Pandeva, who started her PhD a year ago after working in companies and an NGO.

Feedback from participants

We invited the students who registered for the event to participate in two surveys, one before the event and one after the event. The goal of these surveys was twofold. First, we used the results of first survey to detect any misconceptions regarding a PhD which should be addressed during the event. Secondly, the answers from both surveys were compared to evaluate whether events like these are effective for students in mathematics. Students were invited to provide feedback on the event in the second survey to give us an idea on how we can improve an event like this in case it is organised again in the future.

Feedback on event

In general, the event received very positive feedback from the participants. Their comments on the survey stand out the big variety of speakers which made some part of the day useful and/or to taste for each participant, and the space to network with students with similar interests. Hereby we summarize the main criticism.
Points for improvement:

- Better acoustics in the room (and sound quality online if the event is live streamed).
- A less full/long day,
- Some students suggest that the PhD speakers talk even more about their journey to the PhD and daily activities.

Points to keep:

- Variety of speakers and activities (workshops), i.e. the format of the event.
- In person meeting to meet fellow students and the hybrid option for students who couldn't attend in person.
- Having current PhD students giving a talk.
- Having PhD volunteers around to ask questions.

From this feedback we advise any future organising committees to focus on the room acoustics. Furthermore, they could maybe split the group in people who already know they want to pursue a PhD and people who are hesitant about it and have some separate parts for each group to make the day feel less crowded. Another solution would be to include longer breaks.

Quotes

Some quotes from the comments on the survey after the event:

- *[…] it was great and I really appreciate the effort you put into this* :) (ID = 122)
- *thank you very much for organising it, it was so helpful!!* (ID = 117)
- *Thank you so much for organizing it, it was wonderful! :)* (ID = 115)
- *Thank you so much for organising this! I didn't realise the impact that it would have on me (female Bachelor of mathematics student), and how much I needed that impact to change the way I see my future. I always thought that having male professors didn't influence my feelings of doing a PhD or anything like that, because they have never expressed any sexist behaviour or remarks, or made me feel like I couldn't do it. But answering the questionnaire before the event made me realise that I did feel isolated and I didn't think that I could do a PhD. And this event really changed my whole view and made me realise that seeing women actively enter the field, be a part of it, not have to "become men" or whatever, was so joyous. I think that in simple terms, *seeing representation in this field* and hearing stories of women in the field and their feelings, meant a lot more to me than I thought it would. So thank you!!!* (ID = 198)
- *Thank you for the event! I really liked it* (ID = 170)

Finances

This event was sponsored by:

- EWM Netherlands
- Platform Wiskunde Nederland
- The four mathematics clusters in the Netherlands: STAR, DIAMANT, NDNS+, GQT

A short summary of the costs is given in the table below, a detailed overview can be found in the attachment. The original total budget was 8,754.66 euros and the total actual costs were 6,929.48 The main difference between the budgeted expenses and the actual costs results from the decisions to not host a dinner for speakers and volunteers, as this was not possible due to the Covid pandemic, but to give an extra gift instead. Hence, some of the expenses budgeted for the dinner were used for the extra gifts for speakers.

Expenses		**Income (sponsors)**	
Location	€ 0	STAR	€ 1,100.00
Catering	€ 2,558.84	DIAMANT	€ 1,100.00
Workshops (3)	€ 3,543.44	NDNS+	€ 1,100.00
Appreciation volunteers	€ 662.47	GQT	€ 1,100.00
Travel costs	€ 132.94	EWM Netherlands	€ 2,532.47
Materials	€ 34.78		
Total	**€ 6,932.47**	**Total**	**€ 6,932.47**