

# Application for Minerva Informatics Equality Award

June 15, 2024

## Abstract

Women in Cryptography (WinC) is an initiative founded in 2022 to provide a space for those who identify as women in the cryptography community. Our goals are to promote diversity, integrate more women into the community, provide a safe and inclusive space for discussion and growth, offer mentorship and role models, as well as actively participating in the organization of our research community. We have held several in-person and online events and have received overwhelmingly positive feedback from the community. Our current means of communication is a Discord server with more than 200 members.



## Applicants on behalf of Women in Cryptography (WinC)

*Submission as a group*

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## 1 Description of WinC

The cryptography community, centered around the International Association for Cryptologic Research (IACR), is rapidly expanding in both academia and industry. Our community produces fascinating results and has a real impact on secure and private communication in this world. Even though no concrete statistics exist, it is evident that our community has unrealized potential to be more diverse.

*The Need for Diversity.* Diversity is crucial for the vitality and health of any ecosystem, offering varied perspectives and fostering outcomes that resonate with a broader audience. One prominent area where diversity is lacking within the cryptography community is gender representation. However, our vision for inclusiveness extends beyond gender to encompass sexual orientation, race, ethnicity, national origin, health status, and disability. Achieving this inclusive environment requires intentional and sustained efforts.

*Foundation of WinC.* Recognizing the need for a more structured approach to promoting diversity, we established the Women in Cryptography (WinC) community in late 2022, as we observed that most meet-ups centered around women and diversity in our community were *ad-hoc* and temporary. For instance, there were a *Women in Cryptography Networking Reception* and a *Panel Discussion on Allyship and Inclusion* held (in parallel!) during the conference CRYPTO'22. However, minimal to no actions were taken following the discussions. Due to the initiatives of several women, WinC was born in a multiple step process. Sofia Celi launched the [WinC website](#), and Katharina Boudgoust summarized the different discussion points that emerged at the reception held during CRYPTO'22. Those notes were later [published on the WinC website](#). With the support of Allison Bishop, the three created a dedicated Discord server to enable interaction among the WinC community. The Discord server was officially advertised by the [IACR news feed](#) in February 2023, as well as through diverse mailing lists and Twitter. We highlight that we created the WinC community from scratch with very little support from bigger organizations or communities, mainly leveraging our social-media and word-to-word connections in order to grow.

**Our Goals.** Before detailing the initiatives we have organized so far, we state our goals.

First and foremost, we aim to create a supportive community for people who identify as women in the field of cryptography. We provide a place where women can seek mentorship, ask for advice, or engage in discussions. We further advocate for more diversity in our community as a whole. Our ultimate goal is to make women- and diversity-focused events in the cryptography community a consistent effort with long-term measurable impacts that can be assessed and built upon.

**WinC Discord Server.** The WinC Discord server is the heart of our community and the main platform for communication and organization. We also use it to organize and advertise our different actions.

*This server offers a safe space for cryptographers who identify as women to connect and share experiences.*

We highlight that many of our actions are aimed at fostering a broader perspective on diversity. Members of WinC can also use this server to share job offers or promote other diversity-related events. In March 2023, we surveyed the WinC community on Discord to understand what types of initiatives they would be most interested in. Based on their feedback, we organized our first virtual events, detailed below. We describe the impact of those events in Section 2.

**WinC Seminar Series.** Most people in the WinC community expressed their passion for having seminars. We thus launched the WinC seminar series. We currently plan to hold two seminar series annually, each composed of three scientific talks and one career advice talk, distributed over four weeks.

*These seminars are aimed at highlighting the achievements and career-paths of senior women in the male-dominated field of cryptography. In addition to exchanging knowledge, this will increase the sense of belonging and retention of more junior women in the community, who might drop out of their career due to a lack of visibility, impact of negative stereotypes, and feelings of un-belonging.*

In the organization of these seminars, we promote inclusion in different ways. On one hand, we invite speakers from different countries, backgrounds, and career paths, working on a wide range of research topics. On the other hand, in order to engage as many members of the WinC community as possible, we schedule talks with respect to different time zones, and record and publish them online afterwards on [WinC YouTube channel](#). We highlight that everyone is welcome to attend the seminars.

**WinC Coffee-Break Series.** The second most popular choice was for regular online one-to-one meetings. We thus organized *WinC coffee-break series*. We currently aim for two coffee-break series per year, each bringing two WinC members together.

*The coffee-break series aim to provide an informal setting where two members of the cryptography community can connect and exchange ideas during a coffee-break. These meetings enhance connections within the WinC community and help women learn from each other's experiences.*

An important initial step in organizing these meetings is to invite more senior cryptographers to participate, allowing junior members to connect with them. We then announce these meetings on our platforms and invite WinC members to sign up. Upon signing up for the coffee-break series, the participants can optionally share their current position, time-zone, and research topics or interests. We also encourage them to express their expectations from the meeting; for instance, if they wish to receive advice from a more senior cryptographer, or if they want to connect to a person who works on their research topics, etc. We then try to match two WinC members, and let them schedule the meeting. We ask for feedback after the end of each coffee-break series.

**WinC Workshops and Meet-Ups.** In addition to the online formats described above, we also aim to bring WinC members together during in-person events, such as conferences organized by the IACR throughout the year. These gatherings can take various forms. For instance, several informal meet-ups have already taken place, such as meetings during the [Real World Crypto](#) conference in 2023 and 2024. Additionally, we plan to hold regular formal in-person workshops focused on the topic of diversity. Specifically, upon an initiative from the general chairs of the [EUROCRYPT'24](#) conference, we organized our first WinC workshop during this conference.

*The goal of our in-person workshops and meet-ups can be summarized as providing a space that brings together different groups to discuss different topics related to diversity in the cryptography community.*

**Related Initiatives.** The creation of WinC was inspired by other women-led initiatives like [Women in Number Theory](#). We want to highlight that WinC complements other events and organizations that promote the presence of women in mathematics and computer science. For instance, the workshop series [CrossFyre](#), which started in 2011, promotes the research of women in cryptography, robustness and provable secure schemes. Additionally, single events such as [WISC'23](#) and the [Panel Discussion on Allyship and Inclusion](#), held during the CRYPTO'22 conference, contribute to these efforts. **However, a key difference between WinC and these initiatives is that WinC aims to operate as a continuous platform throughout the year, rather than focusing on single days or weeks.**

## 2 Evidence of Impact

After detailing the creation of WinC and our different initiatives and formats in the previous section, we now take the time to highlight the great success we have achieved so far. Despite being a young community, we have so far successfully established ourselves as a platform that offers a safe space for sharing and connecting, broadens perspectives on diversity, and, more importantly, is driven by community input and plans for the future. We are thrilled with the positive feedback we receive, from both women and male allies. We emphasize that before WinC, diversity-related events in our community were infrequent. However, now we observe an increase in initiatives that focus on various aspects of diversity. We consider this to be an important impact on the community, as people now feel there is a dedicated space supporting women’s experiences, motivating and inspiring to advocate for other underrepresented groups as well.

### Discord Server

It offers multiple ways for the members to engage; they can post job offers and advertise for diversity-oriented events. The Discord server was, for instance, used to advertise for [CrossFyre’23](#) and [CrossFyre’24](#), as well as for [RISE’23](#) and [CFAIL’24](#). One of our favorite success stories involving the WinC Discord server is when it facilitated a connection between two undergraduate students. This connection enabled the second student to share the first student’s hotel room during a conference, which otherwise would have been impossible for the second student to attend.

### Seminar Series

We organized our first seminar series in November 2023, which was a great success, and are currently hosting our second seminar series in May/June 2024. Recall that each series is composed of three research talks and one career advice talk. The career advice talks, in particular, are highly attended by WinC members. We also encourage all speakers to share insights from their personal experiences, which the audience greatly appreciates. For both editions, we successfully invited senior women from academia and industry to deliver inspiring and engaging presentations. We record the talks and publish them on [WinC YouTube channel](#). On average, around 15 people attend each talk.

### Coffee-Breaks Series

Two editions of the coffee-break series have thus far been organized; one in November 2023 and one in January/February 2024. In the first edition, 32 pairs were matched. The majority of women who signed up were simply looking for a pleasant coffee break with someone from the community, regardless of field of interest, seniority, or geographical location. However, many of the junior members (Bachelor’s, Master’s, and PhD students) were specifically seeking mentorship from more senior members of WinC. Initially, we struggled to reach a significant number of senior women cryptographers through Twitter and Discord. To address this, we directly emailed the senior women we were aware of. This approach proved highly successful; significantly more senior women signed up for the second edition, and we matched 43 pairs.

### In-person Meet-ups and Workshops

As described in Section 1, we organized in May 2024 our first in-person workshop during the EUROCRYPT’24 conference in Zürich, Switzerland. The event was initiated by the general chairs of the conference, Julia Hesse and Thyla van der Merwe, which we appreciate. We advertised the event through our common channels (Twitter, Discord and personal networks) and additionally published a [description of the event](#) on the program website of the conference.

The goal of this event was to 1) gather people advocating for diversity in the cryptography community, 2) listen to the perspectives from those who suffer from the lack of diversity, and 3)


brainstorm ideas on how to address the raised issues as first step towards a concrete plan of action. After a short ice-breaker game, we asked people to split in groups. Each group gathered around a table to discuss one of the following topics: (1) *From visas to breastfeeding: how to organize inclusive conferences?*, (2) *Low representation, high demand: addressing the consequences of belonging to a minority*, (3) *Diversity in the everyday: spotting, reacting and educating*, (4) *Allyship: from belief to action*, and (5) *Cryptographers from the Global South: challenges and opportunities*. Each table was guided by a senior researcher, and participants discussed and collaboratively brainstormed different ideas on a shared board. The event concluded with each table presenting key discussion points and potential strategies for improving diversity in our community. The workshop received attention from the community, attracting approximately 70 attendees. In response, we created dedicated Discord channels for each topic in order to document the discussions, and coordinate for actionable initiatives.

## Future Directions

Even though the last one and half years have been a great success and have marked significant achievements for WinC, we have many ideas for the future.

- **Enhancing the WinC Discord Server.** To consolidate our current organization, we want to make sure that the WinC Discord server stays active and even gains some more liveliness. We plan to integrate interested male allies by creating dedicated discussion groups where they can join on invitation, keeping the rest of the server a safe space for those identifying as women.
- **Expanding Our Seminar Series.** Building on the success of our current seminar series, we aim to enhance our outreach efforts to boost attendance and visibility. One approach is to create a dedicated mailing list and leverage our Twitter outreach to keep our community informed about upcoming seminars and events.
- **Automating and Expanding the Coffee-Break Series.** Our coffee-break series has been a popular initiative, but the manual matching process is time-consuming. We plan to implement an automated system to streamline this process, making it more efficient and scalable.
- **Assessing Impact Through Data Collection.** Measuring the impact of our initiatives is crucial. We plan to collect baseline statistics from the IACR and supplement them with our own data. This will help us understand our progress and identify areas for improvement.
- **Strengthening Organizational Structure.** To manage and implement these future plans, we need the active participation of many WinC members. A key step is to establish a stable and dedicated team of active members who will coordinate the organization and development of WinC. We will create sub-committees focused on specific areas such as event planning, outreach, mentorship, and data analysis to distribute responsibilities and enhance efficiency.
- **Creating and Strengthening Links with Sister Communities.** We recognize the importance of building strong connections with other diversity-focused groups and organizations. By creating and strengthening links with sister communities, we can share resources, insights, and support each other's initiatives. This includes participating in joint events, co-hosting panels, and cross-promoting activities to enhance the visibility and impact of our collective efforts.

## Resources

- Our logo, the WinC Cat 
- WinC Website <https://www.womenincryptography.com/>
  - Seminar Series <https://www.womenincryptography.com/seminar/>
  - Coffee-Break Series <https://www.womenincryptography.com/coffee-breaks/>
  - Workshops <https://www.womenincryptography.com/workshop/>
- WinC YouTube Channel <https://www.youtube.com/@WomeninCryptography>
- IACR News <https://www.iacr.org/news/item/20114>
- Event description of our first in-person workshop May 2024 <https://eurocrypt.iacr.org/2024/WinC.pdf>
- Some of our inspirational reads:
  - John Oliver Siy Benjamin J. Drury and Sapna Cheryan. When Do Female Role Models Benefit Women? The Importance of Differentiating Recruitment From Retention in STEM. *Psychological Inquiry*, 2011.

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