SIMONS RESEARCH FELLOWSHIP

AIC Structures and Representation Theory in Non-Commutative Algebras, Egypt, France

Simons Grantee: **Dr. Susan El-Deken**, Professor, Helwan University, Egypt
Host: **Prof. Alfred Geroldinger**, University of Graz, Graz, Austria

CONTEXT

While Egypt possesses a vibrant scientific community with distinguished scholars, researchers face profound financial challenges. Extremely low pay, high research costs, and limited internal funding make it difficult to sustain a thriving ecosystem. Consequently, targeted external funding from international bodies like the IMU CDC is critical. This support is essential for connecting Egyptian mathematicians with the global research community, helping to overcome professional isolation and build sustainable international partnerships.

CDC SUPPORTED ACTIVITY

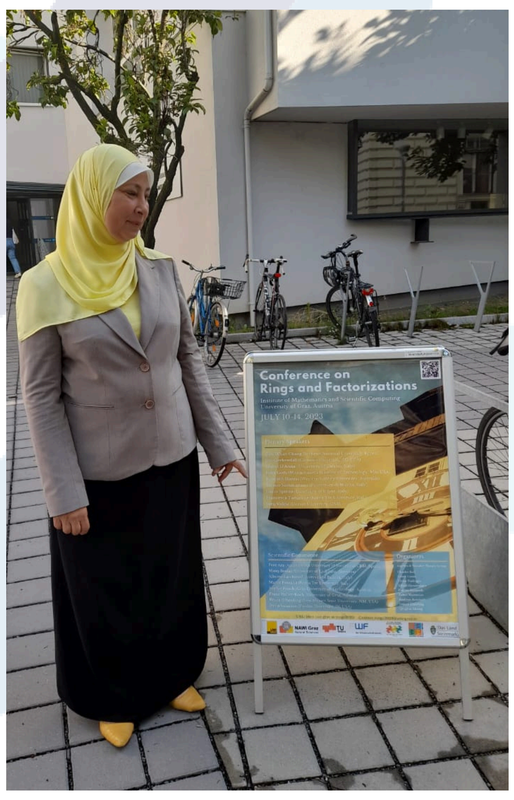
Through the IMU CDC Simons African Fellowship Program, I conducted a 3-month research stay (July 1 – September 30, 2023) at the University of Graz, Austria, hosted by Prof. Alfred Geroldinger. During this period, the host university also organized major international conferences, which provided an invaluable platform for networking. The activity facilitated deep collaboration with leading experts and direct integration into the European mathematical research environment.

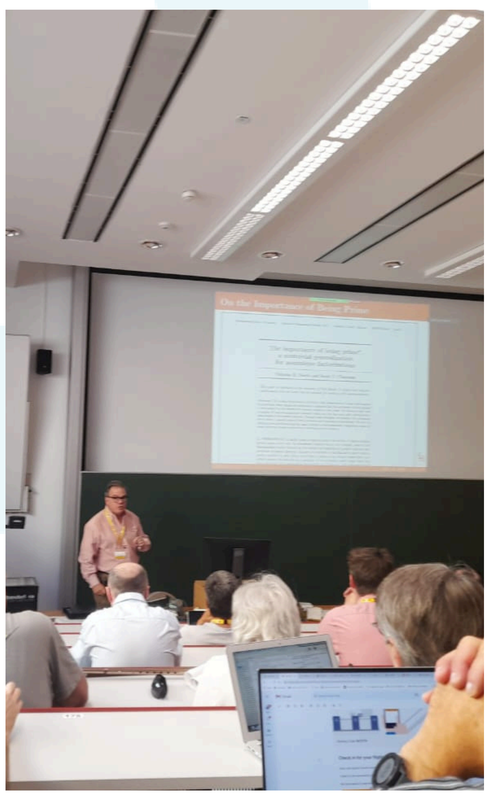
IMPACT

The fellowship had a profound impact by breaking down the barriers of isolation and integrating my work with the international community. Participating in international conferences allowed me to exchange ideas with over 120 specialist scientists in my field. This exposure led to direct collaborations with researchers such as Harald Fripertinger and Nico Georonwald. The practical support from the IMU-CDC not only advanced my personal research but also fostered sustainable partnerships that will continue to benefit Helwan University long after the funding period ends.The opportunity to engage with such a diverse and esteemed group of scientists broadened my perspectives and enriched my approach to non-commutative algebras. The fellowship built a bridge for ongoing international dialogue, enabling continuous exchange of ideas and access to the global research community. Furthermore, the knowledge and techniques acquired during this period are being actively integrated into my curriculum at Helwan University, and students also have the opportunity to be co-supervised by Prof. Fripertinger from Graz University, ensuring that future generations of mathematicians will benefit from these advancements.

OUTCOMES AND ACHIEVEMENTS

- Successfully completed a 3-month collaborative research stay at the University of Graz.
- Engaged with over 120 specialist scientists during international conferences hosted by the university.
- Established an ongoing collaborative research relationship with Harald Fripertinger.
- Initiated a new collaboration with Nico Georonwald, resulting in a jointly published paper.
- Transfer new directions of research in postgraduate programs in my University
- Co-supervision of master theses in Helwan University with Prof. Harald from Graz University





REFLECTIONS

The IMU-CDC Simons African Fellowship was a transformative experience that provided a vital bridge to the global mathematical community. By overcoming the profound financial challenges typical of developing regions, this grant enabled effective, ongoing collaborations that will profoundly enrich my research and strengthen the mathematical capacity at Helwan University.

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