

# Midwest Nano Infrastructure Corridor (MiNIC)

- Location: University of Minnesota, Minneapolis, MN



**Minnesota Nano Center (MNC)**



**Characterization Facility (Charfac)**

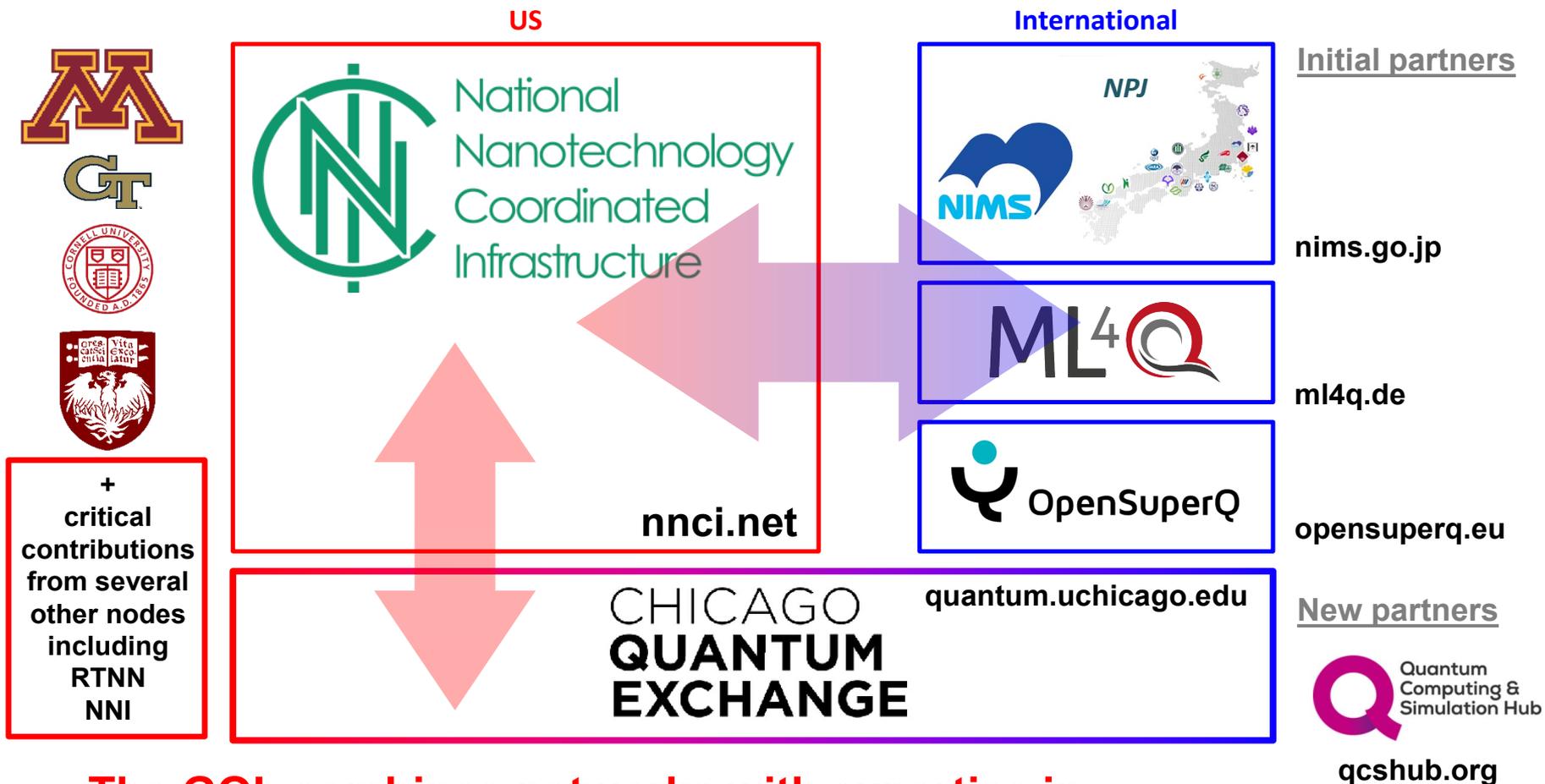
- Two focus areas: Quantum Leap, Rules of Life. Focus on establishing infrastructure and external users base in these two emerging areas.

# Midwest Nano Infrastructure Corridor (MiNIC)

- What new program did you introduce in Year 6?
  - MiNIC is leading the Global Quantum Leap (GQL), a strategic alliance between the NNCI and international networks on quantum information sciences. Funded through the NSF AccelNet program.
- **The GQL has three main goals:**
  - Create key linkages between nanofabrication and quantum information science research communities.
  - Develop a technology roadmap for emerging quantum systems.
  - Equip students, postdocs and faculty with skills to collaborate with international teams to address the grand challenges related to quantum computing systems.
- **The GQL is filling the knowledge and communication gap that exists between these two communities.**



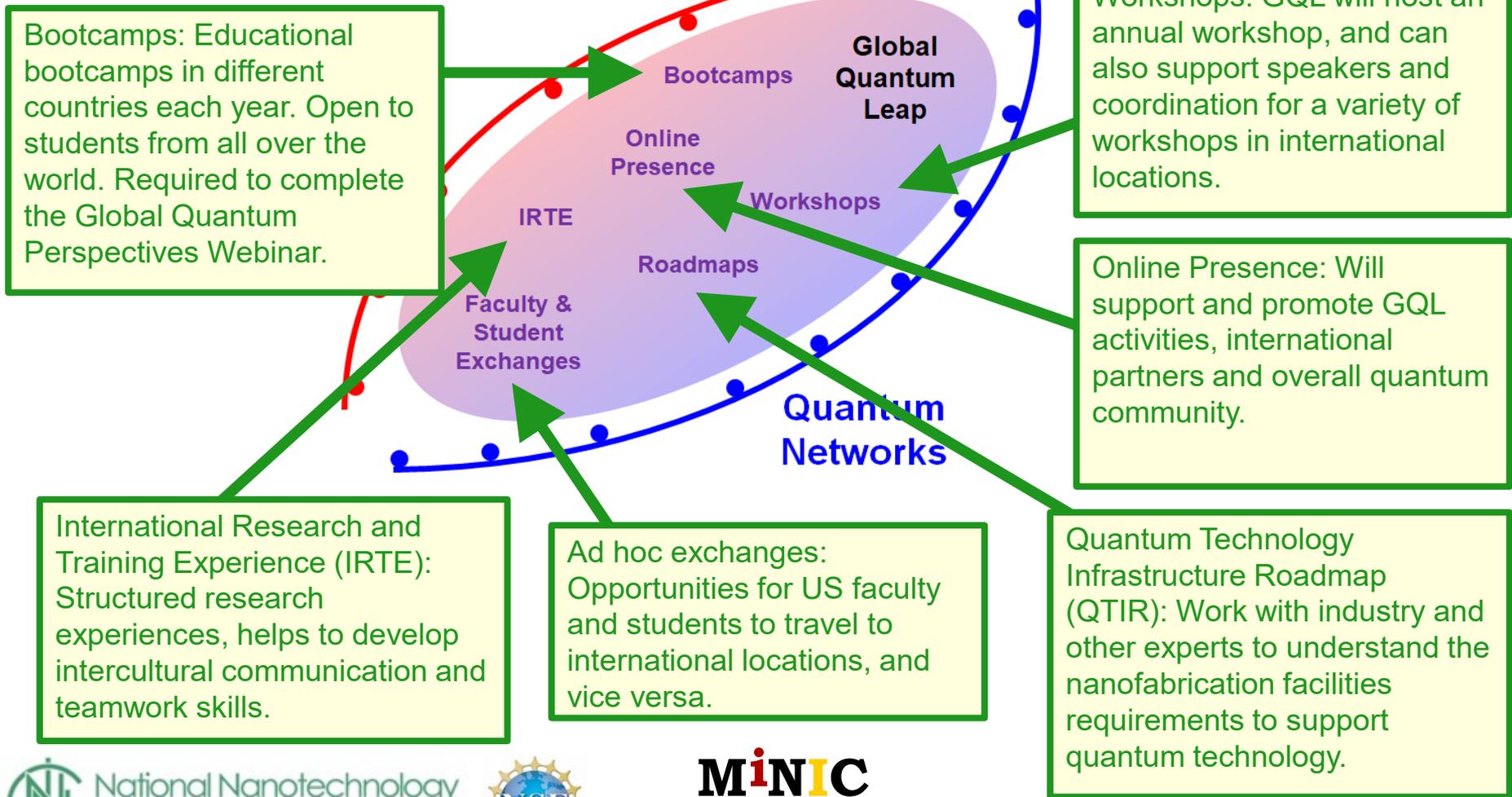
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- The GQL combines networks with expertise in nanofabrication and quantum technology.

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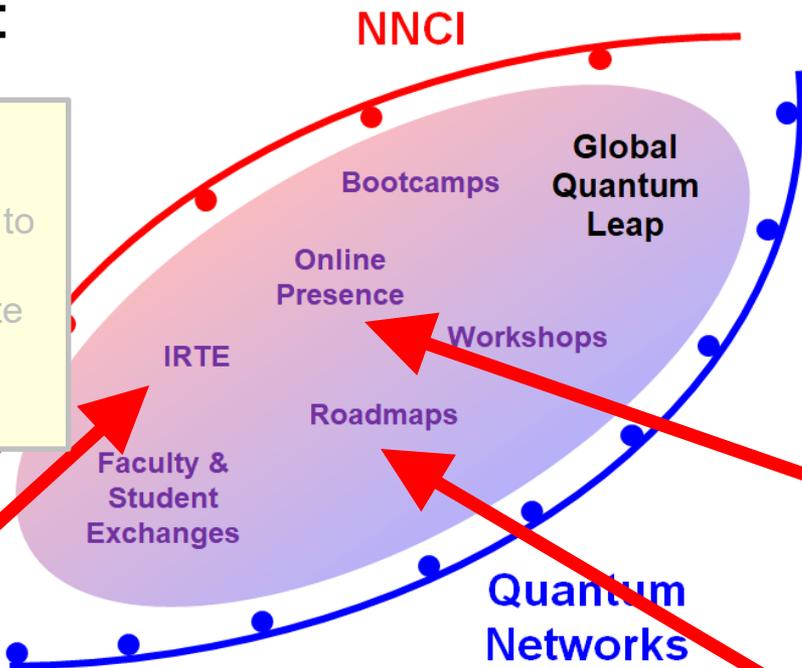
- Key activities:



# Midwest Nano Infrastructure Corridor (MiNIC)

- Key activities:

Bootcamps: Educational bootcamps in different countries each year. Open to students from all over the world. Required to complete the Global Quantum Perspectives Webinar.



Workshops: GQL will host an annual workshop, and can also support speakers and coordination for a variety of workshops in international locations.

Online Presence: Will support and promote GQL activities, international partners and overall quantum community.

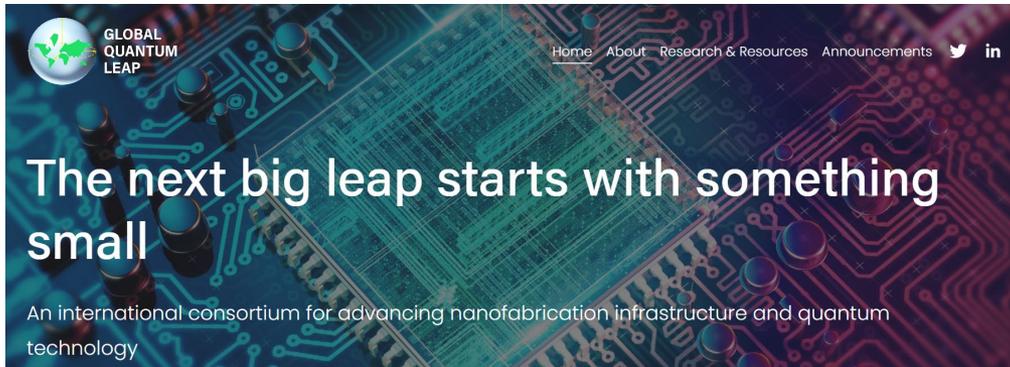
International Research and Training Experience (IRTE): Structured research experiences, helps to develop intercultural communication and teamwork skills.

Ad hoc exchanges: Opportunities for US faculty and students to travel to international locations, and vice versa.

Quantum Technology Infrastructure Roadmap (QTIR): Work with industry and other experts to understand the nanofabrication facilities requirements to support quantum technology.

# Midwest Nano Infrastructure Corridor (MiNIC)

- Website and social media:



[www.globalquantumleap.org](http://www.globalquantumleap.org)

- **Website:** Provide general program information and make announcements for funding opportunities, and archive results.
- **Social media:** Promote activities and results within our partner networks, and also advancing the broader online quantum discussion.

@gquantumleap



Follow

**Global Quantum Leap**

@gquantumleap

An international consortium, funded by @NSF, for advancing nano fabrication infrastructure and quantum technology.

Joined January 2021

52 Following 39 Followers



**Global Quantum Leap**

An international consortium, funded by NSF, for advancing nanofabrication infrastructure and quantum technology.

Research · Minneapolis · 64 followers

# Midwest Nano Infrastructure Corridor (MiNIC)

- Currently have two student exchange opportunities:



## Applications available from Lynn Rathbun



10/9/21

### Applications Open

Summer 2022 International Training and Research Experience (IRTE) in Quantum Materials & Devices at NIMS, Tsukuba, Japan

[Read More](#)

<https://ml4q.de/ml4q-internship/>



9/30/21

### Applications Open

ML4Q Undergraduate Research Internship Program in Germany

[Read More](#)

# Midwest Nano Infrastructure Corridor (MiNIC)

- Quantum Technology Infrastructure Roadmap (QTIR):
  - Thrusts to cover different quantum platforms (superconducting; topological; trapped ions; spins; color centers),
  - Recruited researchers in each topical area, both within GQL network, as well as outside academic and industrial partners.



## Current list of participants

Platform	Person	Institution	Partner?
Organizer	Vlad Pribiag	UMN	----
Organizer	Christopher Ober	Cornell	----
SC	Heike Riel	IBM	No
SC	Jonas Bylander	Chalmers	Yes - OpenSuperQ
SC	Mark Nelson	Skywater	No
SC/Topo	Valla Fatemi	Yale	No
Topo	Vlad Pribiag	UMN	Yes - NNCI
Topo	Sergey Frolov	U Pittsburgh	No
Topo	Chris Palmstrom	UCSB	No
Topo	Srijit Goswami	QuTech (Delft)	Yes - CQE
Trapped ion	Patty Lee	Honeywell	No
Spin	Ruoyu Li	IMEC	No
Color Center	Shangying Cui	HRL	No
Color Center	Greg Fuchs	Cornell	Yes - NNCI

- Lead by Vlad Pribiag and Chris Ober
- Goal is to produce 2 versions in 2023 and 2025.
- Publish in archival journal (e.g. npj Quantum Information or PRX Quantum)

# Midwest Nano Infrastructure Corridor (MiNIC)

- The NSF AccelNet Global Quantum Leap program is off to a good start, despite COVID-19 pandemic related delays.
- In Year 1, we initiated activities such as website, social media and road-mapping which did not require international travel, and now we are starting exchange activities going into year 2.
- We have had good engagement and buy-in from our partners.
- Please follow us on Twitter (@gquantumleap) and LinkedIn to find more announcements soon (particularly individual student exchange opportunities).

