The Operator Algebras Mentor Network
Impact of Community-Based Mentoring

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The Start of OAMN

Following YWC*A 2017 and 2018, the Operator Algebras Mentor Network was conceived in 2019 to provide continuous support to operator algebraists who are underrepresented within mathematics due to gender.

YWC*A 2017 in Copenhagen, organized by F. Arici, S. Arklint, and E. Gillaspy.

Mission of OAMN (Summarized)

◈ Foster diversity, inclusion, and mentorship within the field of operator algebras by retaining operator algebraists who are underrepresented or in minority within math due to gender (Mentee Target Group = **MTG**)

◈ Provide early-career OAs with a trusted ally in times of adversity, and offer career advice and support outside of traditional institutional frameworks

◈ Forge connections between mathematicians and increase the visibility of underrepresented or minority operator algebraists

◈ Improve mentorship skills of mathematicians

Global & Group Mentoring Structure

- ❖ Member institutions span 26 countries

- ❖ Members belong to one of three tiers:
  - ➢ **Senior Mentors** (tenured/tenure-track/permanent employees of universities or industry),
  - ➢ **Junior Mentors** (postdocs, non-tenured faculty, employee in industry with <6 yrs experience), and
  - ➢ **Mentees** (graduate students/recent grads from the **Mentee Target Group**)

- ❖ Members are matched into groups containing at least one member from each tier and at least one Mentor who is in the MTG

The Uniqueness of the OAMN

✓ **group-based mentoring**   ✓ specific to operator algebraists   ✓ conducted on a worldwide scale

The Survey: Central Questions

What is the perception of **gender equity** and **dynamics** in the **OA community**?

COSy 1998, U Alberta

COSy 2024, U Alberta

In what ways **is the OAMN beneficial** to its members (MTG or non-MTG)?

Creation of the Survey

❖ Consisted of core questions asked of all respondents as well as customized questions for each tier in the OAMN

  ➢ Demographic and personal information

  ➢ Perceptions of representation, equity, and dynamics in OA community

  ➢ Access to mentoring focused on underrepresented genders

  ➢ Perceived benefit of mentors and specifically of membership in OAMN

❖ Numerous drafts and revision were guided by feedback from:

  ➢ non-survey respondents

  ➢ Research Ethics Committees at Brandon University and Embry-Riddle

Survey Distribution and Responses

◇ Compiled database of OAMN members and other operator algebraists.

OAMN	non-OAMN	Total
109	132	241

Database spans **75 institutions** across **20 countries**.

◇ Survey distributed as individual link by email and was open for 4.5 months.

OAMN	non-OAMN / undisclosed	Total
33	35	68

Respondents represent **39 institutions** across **14 countries**.
The **23 MTG respondents** are or were affiliated with the OAMN.

	OAMN members (non-MTG and MTG combined)	OAMN members: MTG	OAMN members: non-MTG	Control group (non-OAMN members; all non-MTG)	Undisclosed
Permanent research-focused faculty	9	3	6	16	0
Permanent teaching-focused faculty	3	2	1	0	0
Permanent research-teaching-balanced faculty	4	3	1	5	2
Industry professional	1	1	0	0	0
Research-focused postdoc	7	5	2	3	0
Teaching-focused postdoc	0	0	0	0	0
Graduate student	8	8	0	7	0
Other	3	1	2	2	0
Total	33	23	10	33	2

Gender Inclusion & Perceived Support

All responses to: *"It is important to raise awareness about instances of gender-based harassment within the operator algebras community":*
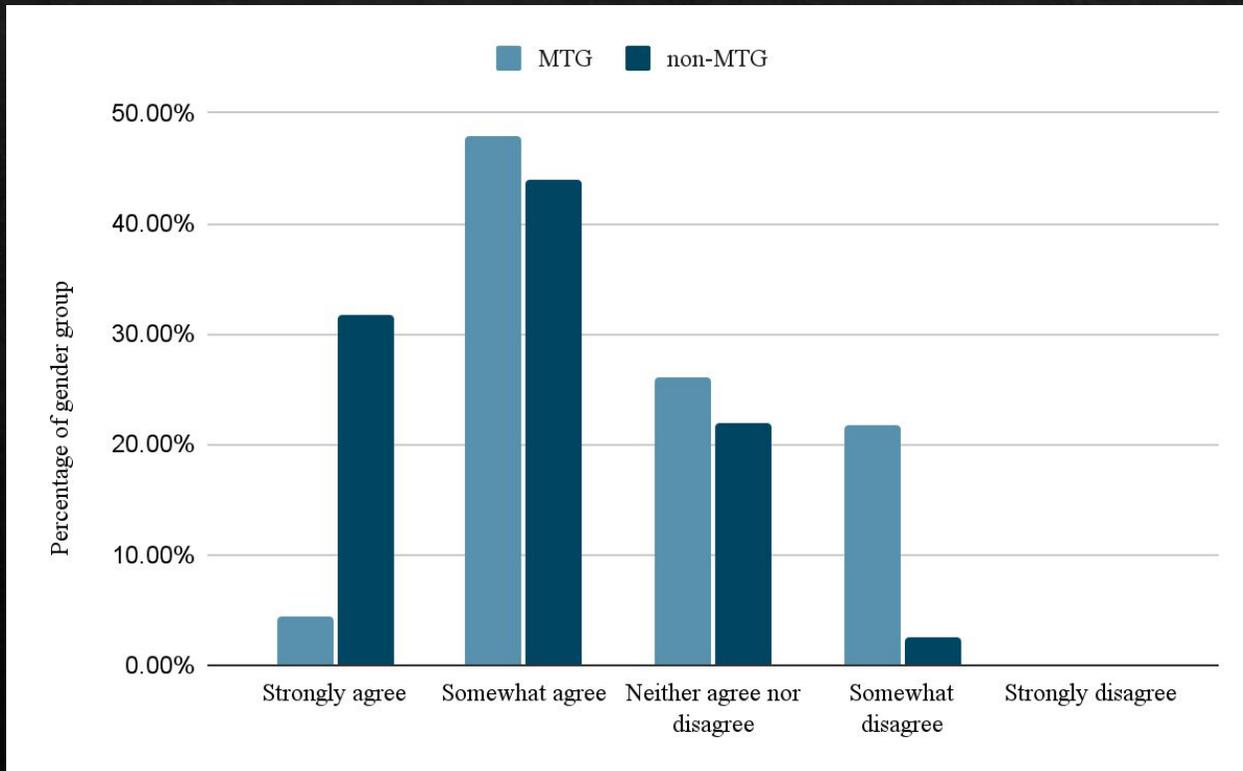
OAMN	nonnon-OAMN / undisclosed
82% strongly agreed	71% strongly agreed

MTG responses to: *"I feel supported with respect to any perceived gender barriers":*

Strongly Agree	Somewhat Agree	Neither Agree/Disagree	Somewhat Disagree
14%	41%	36%	9%

Identity & Sense of Belonging

All responses to: *"Being an operator algebraist is part of my **identity**.."*

- ❖ **31%** of **non-MTG** strongly agreed while **only 4%** of **MTG** strongly agreed

- ❖ **Only 2%** of **non-MTG** somewhat disagreed while **22%** of **MTG** somewhat disagreed

One's **science identity** strongly correlates with their self-efficacy, persistence, and career choice.
[Science Identity Theory]

Community Dynamics

All responses to: *Rate your comfort speaking up at a conference.*

MTG	non-MTG
38% are highly or somewhat comfortable	**76%** are highly or somewhat comfortable

OAMN junior mentor and mentee responses to:

Rate your comfort speaking up in an OAMN meeting.

– 70% highly comfortable   – 30% somewhat comfortable

Access to Support Networks

*Is there a support network at your home institution **for members of the MTG**?*

43% of MTG respondents and **36%** of non-MTG respondents report they are aware of such a support system.

*Do you have a mentor in OA **other than your supervisor** at your home institution?*

Only **3 of the 23** total graduate student or postdoc respondents reported having a mentor in operator algebras, other than their supervisor, at their home institution.

*Are you aware of a support network at your home institution **specifically for OA**?*

Only 9% of all respondents reported being aware of a formal mentoring program solely for operator algebraists at their home institution.

Effectiveness of the OAMN

Additional questions were asked of the 33 OAMN members, consisting of
- 11 Mentees,
- 12 Junior Mentors, and
- 10 Senior Mentors.

The survey data reveals both strengths and areas for improvement, supporting some choices made by OAMN's early Board of Directors and guiding future refinements.

What OAMN Members Had to Say

Mentee responses to the statement, *Mentors in my group are knowledgeable about advising on topics specific to your geographical location*:

Strongly Agree	Somewhat Agree	Neither Agree/Disagree	Somewhat Disagree
45%	22%	22%	11%

- 80% of Mentees rate their experience in the OAMN as **4 or 5** out of 5.
- Mentees rated quality of **senior non-MTG** mentors higher than **junior non-MTG** mentors, but the analogous ratings for MTG mentors was not significantly different..

Mentor responses to the statement, *I have made changes to how I organize conferences, advise students, or choose collaborators as a result of their participation in the OAMN.*   **100%** Strongly agree or Agree

- Mentors rated their experience in the OAMN **less favorably than Mentees.**

Future Work

❖ We are writing a follow-up paper with more statistics-heavy analysis
  ➢ Focus on surprising response distributions which were not presented today
  ➢ Exploring survey response correlations across different metrics.

❖ Providing anonymized feedback to OAMN
  ➢ The survey results may help guide the direction and operation of the OAMN in a meaningful, data-driven manner.
  ➢ We intend to complete a longitudinal study by distributing the OAMN-specific part of the survey every 2 years (look out for the next one this winter!)

❖ We hope to survey a control group of MTG from another sub-discipline of mathematics for future surveys.
  ➢ Recall, all MTG respondents are or were affiliated with the OAMN.