

## Higher Meanings: A Speaker Series Connecting Mathematics and Religion

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### Cover Page Footnote

The first author expresses appreciation to the mathematics education master's students who participated (as part of his spring 2021 qualitative research methods class) in discussing coding of the survey given at the end of the first talk: Patricia Barrientos, Candelario Castaneda, Kyle McConnell, Adrian Portillo, Hillary Quiroz, Luis Ramirez, Jacklyn Rodriguez, Jose Tobias, and April Torres. The authors also express appreciation to the staff at Sinai and Synapses and at Temple Mount Sinai for helping make the whole project possible.

# Higher Meanings: A Speaker Series Connecting Mathematics and Religion

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## Synopsis

An innovative grant-funded general adult audiences international speaker series on connections between mathematics and religion yielded six 2021 (now archived) presentations. We share reflections and lessons learned, informed by two sets of surveys.

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## 1. Motivation

Mathematicians and educators have made connections between mathematics and religion for centuries [31, 36, 37, 38, 41]. Today, the Association of Christians in the Mathematical Sciences (<https://acmsonline.org/>) offers conferences, publications, and networking to explore the interplay between (Christian) faith and mathematics.

Yet, the perception of a divide remains. Jewish day schools rarely integrate mathematics and Judaics studies [20, 33]. Religious traditions encourage a knowledge of basic principles like weights and measures (e.g., Leviticus 19:35-36), but may appear to avoid addressing or exploring possible discrepancies in more involved accounts of how the world works. Theological concepts which suggest the Divine as physical and material Creator are often perceived in opposition to the pursuit of anything scientifically oriented. Similarly, mathematics and the sciences may often reflect a disinterest in God due to that same theological stance which may discourage believers from contemplating higher mathematical concepts.

Neither mathematics nor religion is that simple. Belief need not be a barrier to the study of mathematics (or, more generally, to scientific thought). Indeed, belief has inspired many scholars and thinkers with awe as they sought to better understand this world. Similarly, those who focus on the pursuit of mathematics often realize the beauty and the majesty of this complex world. These feelings remind us of the presence of holiness in our lives. They inspire us to see the possibilities and the opportunities at hand. For those with more than a simplistic understanding of God (something more than an old bearded guy who changes the order of Nature on whim and hurls down lightning bolts at rule-breakers), for those seeking to explore the universe's great mysteries through the study of mathematics, religion and mathematics go hand in hand. The barrier, then, is knowledge.

Sometimes that barrier is due to less access to learning. Other times, people want to avoid challenging preconceived notions. Engaging in dialogue between two ideas which many view as irreconcilable is especially important during this time of great polarization in American society. Breaking down barriers and recognizing the ability to find common ground in any sphere is of greater service to us all than merely the opportunity to learn a little bit more about mathematics or religion. Bringing together people who lack mutual understanding or willingness to do any kind of respectful curious dialogue is of heightened importance, especially given our current cultural reality. So, we felt the time was right to cultivate an ongoing conversation to illuminate and revisit preconceptions to find common ground in our own local community and beyond.

## 2. Grant

Towards this end, the first and third authors (a member and the rabbi of Temple Mount Sinai, El Paso's Reform Jewish congregation since the late 1800s with about 300 households currently) wrote a grant to organize an online speaker series in 2021 titled "Higher Meanings: Exploring Connections Between Religion and Mathematics." This free series of six talks (see list in Section 3) targeted a worldwide general audience of adults and older teens seeking more nuanced appreciation for the two domains and how they may overlap.

Scientists in Synagogues (SiS), a national grassroots initiative run by Sinai and Synapses, funded the grant. Sinai and Synapses is a program supported by CLAL (The National Jewish Center for Learning and Leadership) in consultation with the Dialogue on Science, Ethics and Religion program of the American Association for the Advancement of Science (AAAS), and funded by the John Templeton Foundation along with other individual donors. Other project supporters include the Religious Studies program, Mathematical Sciences Department, and Computer Science Department of The University of Texas at El Paso.

After a competitive process of written proposal submission and finalist Zoom interview, we learned that our proposal had become one of only 34 accepted from 120 applications from 14 US states and Canada throughout the project's history. The 12 selected synagogues in our year's cohort represent a diverse cross-section of Jewish denominations: 5 Reform, 3 Conservative, 1 Orthodox, 1 Reconstructionist, 1 independent, and 1 pluralistic beit midrash.<sup>1</sup>

No prior congregation's SiS program focused on mathematics as its particular science, and our speaker series readily attracted coverage in a variety of media [9, 21, 28, 29]. We achieved further visibility through announcements in various listservs and email lists, ranging from individual congregational/community newsletters and e-blasts to forums of international organizations such as the History of Mathematics Special Interest Group of the Mathematical Association of America and the Association of Christians

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<sup>1</sup> While Orthodox congregations have been a small minority of congregations represented in this program, it is worth noting that non-Haredi Orthodox Judaism does include a healthy tradition of Torah U-madda (Torah and secular knowledge).

in the Mathematical Sciences, and professional organization periodicals such as the *NMMATYC News*. Also, shortly before and after each event, the sponsoring organizations sent out e-blasts and made posts. The Sinai and Synapses posts after the Jongerius and Lesser talks turned out to be that organization's second- and eighth-most viewed posts, respectively, for the 2021 calendar year.

As Sinai and Synapses' Founding Director Rabbi Geoffrey A. Mitelman emailed us, “[t]he interaction of mathematics and Judaism touches on everything from questions of truth to the Infinite to the ‘unreasonable effectiveness of mathematics in the natural sciences’ (as physicist Eugene Wigner once said). This project will allow [attendees] . . . to gain insights on how these two realms can come together in unexpected and beautiful ways.”

### 3. Presentations

All presentations targeted general adult audiences by using a “liberal arts” or “literacy” approach that assumed intelligence but not major knowledge of religion, Hebrew, or mathematics (especially algebraic notation). The tone also remained academic, free of any religious proselytization. In each talk, the speaker gave up to an hour's worth of prepared remarks (sometimes incorporating audience response questions and thought exercises) followed by up to a half-hour of moderated Q&A and discussion with attendees and the organizers.

The opening speaker, a mathematics education researcher, shared surprising connections between the mathematical and the religious infinite as he unpacked that section of the first of his math-and-religion papers [20, 22]. The second speaker, a mathematician at a Christian liberal arts college, is active in the Association of Christians in the Mathematical Sciences, wrote [10], and co-authored chapters on dimension, infinity, and proof/truth in a faith-based mathematics book [8]. The third speaker is a mathematician who has authored mathematics history books and sourcebooks [11, 12, 13, 14] and founded *Convergence*, the Mathematical Association of America's online magazine on the history of mathematics and its use in teaching.

The fourth talk's speakers, a couple (in separate departments at the same university), have collectively published 1500+ research papers (e.g., [15, 16, 17, 24, 39, 40]) in areas ranging from mathematics education to uncertainty.

The fifth talk's speaker, a mathematical historian focusing on the creativity, identity, and engagement in the learning of mathematics [18, 19], is chair of the History and Pedagogy of Mathematics International Group and a Diversity Champion of the Institute of Mathematics and its Applications (UK). The last speaker has held administrative or faculty positions in computer science, engineering, and entrepreneurship and his research areas include human-agent rapport in virtual reality and dialogue models for intelligent agents.

We summarize the talks in the following list; readers may find video recordings posted at <https://tinyurl.com/4vbnvfw> and (with transcripts) at <https://sinaiandsynapses.org/topic/mathematics/>.

- March 18: Larry Lesser (The University of Texas at El Paso, UTEP)  
*Divinity and Infinity.* Mathematical concepts (e.g., 1-to-1 correspondence, transfinite cardinal number arithmetic, size(s) of infinity) can help illuminate big ideas in Judaism/religion, including: the value of lives, commandments, and the coexistence of God's transcendence and immanence.
- April 25: Kim Jongerius (Northwestern College, IA)  
*Does God Live in Another Dimension? How What We Assume Shapes What We Conclude.* Mathematics is built on axioms—statements that we assume to be true. Similarly, our underlying assumptions about the world and about God affect the lives we build.
- June 10: Victor Katz (University of the District of Columbia; emeritus)  
*How Religion in Medieval Times Shaped Jewish, Muslim, and Catholic Study of Mathematics.* Much intellectual activity during the medieval period in Europe and the Middle East was fueled by the translation of Arabic work into Latin and nurtured by the Jews. We explore some mathematical ideas developed in Catholic Europe and the Islamic world, concentrating on the effect each religion had on what topics were emphasized. We'll see how contributions of Muslim and Jewish scholars helped spark an intellectual revival in Catholic Europe that ultimately led to the Renaissance.
- August 19: Olga Kosheleva & Vladik Kreinovich (UTEP)

*Mathematics, Computing, Ethics, and Religion: From Naïve “Contradictions” to Deep Agreement.* A naïve literal understanding of religion can make it seem inconsistent with modern science—and sometimes even with ethics. A naïve understanding of mathematics and computing can make people view the use of algorithms as a main reason for many undesirable social phenomena. On a deeper level, mathematics, computing, ethics, and religion work together.

- October 17: Snezana Lawrence (Middlesex University, UK)

*Gersonides and the Limits of Knowledge.* The medieval Jewish philosopher and mathematician Gersonides developed mathematical methods to deal with the limits of knowledge and he influenced later philosophers and mathematicians such as Spinoza and Leibniz.

- December 16: David Novick (UTEP)

*Will Computers Make Religion Obsolete?* Forms and affordances of various technologies can facilitate or inhibit human connection. Computers can use mathematics to explore options from given technical criteria, but are limited in being able to identify, incorporate, and balance moral considerations in complex situations.

We intentionally sought and selected speakers to have diversity in gender (half of the talks included a woman), discipline, religion (one speaker had a strong Christian identity, several speakers had Jewish identities, and talks collectively engaged with mathematics of all three major Abrahamic faiths), and geography: we balanced local speakers with speakers from other parts of the United States or beyond (e.g., the UK). Other aspects of diversity involved the angle or type of content, including philosophical, historical, and sociological aspects of mathematics and religion. Also, the first two talks used concepts of mathematics to make more accessible or plausible some big ideas in religion, while subsequent talks underpinned it with context of the historical connections between mathematics and religion that helped illuminate why the mathematics developed as it did. Talks also varied greatly in how much, if any, the speaker used mathematical notation.



#### 4. Attendance

Advance registrations came from many states and several countries but, as might be expected for a free online event, the actual attendance numbers (110, 59, 82, 31, 20, 31) were less. In particular, the number of computers actually logged in for at least one talk was 72.3% of the number of email addresses registered for at least one talk. The six attendance numbers given are actually the number of unique computers logged in during each session. We recognize that this could underestimate true attendance because sometimes two people watched on one computer, and we also note that this could overestimate true attendance because sometimes an attendee might not pay full attention or stay for the full time. Despite these sources of uncertainty on the exact numbers, we may still have insights to glean.

While each session had a critical mass of attendees needed for interesting conversation, attendance noticeably dropped between the first three and last three talks. Perhaps the initial novelty and wave of media coverage had subsided. Or perhaps by the time most people had COVID vaccination, they had become weary of events on Zoom rather than in-person. Also, in the union of all 6 talks, 217 distinct computers were logged in, of which slightly more than a quarter logged in during multiple talks. The modal number of talks attended being 1 might be explained by people having most of their interest tied to a presenter from their particular community or institution. Another factor could be that the times chosen for the talks were not always convenient for people to attend live and they knew they could simply watch the archived recording the next day. As of June 8, 2022, the combined number of views for the recordings of the six talks had exceeded 1500.

While attendance (and views) is one metric to assess impact, another is analysis of surveys. Section 5 reports results of surveys we wrote that Temple Mount Sinai administered at the conclusion of each individual talk, and Section 6 comments on a survey (written by the granting agency) administered before and after the entire series. These anonymous short surveys of small nonrandom samples functioned as typical collection of feedback on programming, not designed to obtain generalizable knowledge, and so an IRB administrator advised (March 2, 2021 personal communication with the first author) that we did not need to go through IRB review.

## 5. Post-Presentation Surveys from the Host Congregation

After each presentation, the host congregation put a link in the chat window to an anonymous Google Forms survey of 11 items (4 closed-form items, 7 open-ended items) designed to be completed in just a few minutes within a half-hour or so after the end of the presentation; see Appendix A for the complete survey. Nine graduate students (see Acknowledgements) under facilitation by their spring 2021 qualitative research methods instructor (the first author) coded the deidentified data from the first talk using an initial list of codes (adding codes as needed). The team reached consensus to resolve disagreements. One of those graduate students (this paper’s second author) then analyzed the survey data from the five subsequent talks. Response rates (as a percentage of the number of computers logged in) to the six post-talk surveys were respectable: 53%, 36%, 39%, 29%, 50%, and 45%.

In terms of inspiration to attend the talks, about 2/3 of respondents cited their interest in the intersection of mathematics and religion, with the individual realms of math and religion tying for second-most common response, each named by about 44% of respondents. To see if there were interaction patterns between the levels of respondent interest/involvement with mathematics (Question 2) and with religion (Question 4), we constructed Table 1 for the opening talk (which had the highest turnout). The level of interest in religion is mostly concentrated at a high or moderate level, while the level of interest in math has more variability and spans more categories. This type of table yielded similar patterns for the subsequent talks and so it seems reasonable to say that the typical attendee had high interest in religion but not necessarily in mathematics.

	high/prof.	moderate	occasional	neutral	dislike	Q4 total
high/prof.	5	2	3	5	0	15
moderate	12	11	11	2	2	38
occasional	0	1	1	2	0	4
neutral	0	0	0	0	0	0
dislike	0	0	0	0	0	0
Q2 total	17	14	15	9	2	57

Table 1: Responses from the survey at the end of Talk 1. The rows count response for Interest/involvement with religion (Question 4) while the columns count responses for Interest/involvement with math (Question 2).

Questions 3 and 5 asked respondents to write a reason for their selections in Questions 2 (math) and 4 (religion), respectively. Respondents who attended one of the earlier talks were more likely to describe their mathematical interest as related to their area of study or employment while those who attended one of the later talks were more likely to describe it as casual interest. For the explanation of their description of their religious interest, respondents across all six talks wrote of their affiliation with organized religion (some were Jewish, some Christian, and some atheist) and/or their interest. It was interesting that there were several instances when one realm would make an appearance in a description about interest in the other realm, such as the Question 4 response “I am a fairly devout Protestant Christian and interested in how I see the works of God (through?) in mathematics.” or the Question 2 response “Math is the language of God, I guess. I’m interested in understanding God.”

While the descriptions of mathematical interest (Question 3) tended to give facts, the descriptions of religious interest (Question 5) often used language of feelings (e.g., phrases such as “I love learning about...”). Feelings also played a major role in the item (Question 7) about hesitations, with roughly half of the responses expressing fear (usually of mathematics, not religion). Sometimes a response was a fear of lacking sufficient knowledge and sometimes it was a fear of learning something that would disrupt one’s worldview, such as “. . . a fear science may prove religion a fraud.”

A related pattern in Question 7 responses about hesitations involved individuals’ relationships with mathematics, religion, or God, such as: “The political structure of religions is a human construct but God is infinite,” “Shattering lovingly held ideas,” “Assumptions that there will just be conflict,” “Faith is already mysterious — how will math help me think about faith if I can’t understand the math, either?,” “Maybe they think that’s sacrilegious?,” “From the religious side: people saying that science proves G-d doesn’t exist. From the science side: religious people trying to use science to prove that G-d exists without a doubt.”

The second notable element that would cause hesitation is the preconceived notion that religion and mathematics are mutually exclusive: “People may naturally assume that the two are mutually exclusive,” “The idea that science and religion must be kept separate,” “The atheist/agnostic perspective

that religion and science have nothing to do with one another” and the idea that “Math is concrete and discrete [sic], and religion is fluid.” This preconception appears to relate to either the conflict model (“religion and science are inherently at odds”) or the contrast model (“science and religion address different realms”) described by Mitelman [25], who also mentions the concert model that “reconciles science and religion by explaining away incongruities between the two” and the contact model “which allows science and religion to remain in their own spheres, while also placing them in conversation, predicated on the understanding that both are intended to help humans solve the mysteries of nature and give our lives meaning.”

In all but the first talk, most respondents saw personal edification as the most important outcome (Question 8) from exploring the intersection: “People growing in their own knowledge,” “Personal insight into mathematical intuition and Jewish thought,” “Personal education, understanding diversity, different cultures.” The second-most important outcome was achieving compatibility between mathematics and religion: “Understanding that science and Judaism don’t contradict,” “People learn about science and about religion and see that they are not in contradiction.” Participants indicated a willingness to learn in order to dispel the misconception that mathematics and religion have mutual exclusivity. Respondents also remarked on cultural change: “As Katz said...to overcome the notion that mathematics exists outside of culture” and “The most important outcome to me is to have a comprehensive understanding of our world and to understand that one of our main obligations as individuals is to develop our own capabilities to help others.”

Of 92 responses, respondents reported negative past experience (Question 9) 16 times for mathematics and 11 times for religion, which aligns with the relatively high frequency of “fear” in Question 7 responses, and it is perhaps all the more interesting that so many people with fear or negative history nevertheless chose to attend talks in these areas. Overall, 57.6% of respondents in Question 10 were likely to invite a friend to a future talk in this intersection and almost all (94.5%) responses to Question 11’s invitation to “share any other comments” were positive.

## **6. Pre- and Post- Series Survey from the Funding Organization**

The granting organization (SiS) developed a 5-minute anonymous Survey-Monkey pre-series survey with about 20 questions (mostly questions with given answer choices to pick from) to “collect initial informal data surrounding [what Jews think about] Judaism and science.” SiS emailed a link to the pre-survey to the congregation’s augmented mailing list of 648 addresses (that included not only members but also individuals who expressed interest in being on the mailing list) during a window (December 23, 2020 – February 1, 2021) before programming started. SiS received 88 responses.

Within the first few weeks after the end of the full series, SiS emailed a link to a post-survey of similar length and format about “whether and how your perceptions of Judaism and science have changed as a result of the programming you experienced” to everyone who registered (and thus provided their email address) for at least one of the talks. (The target audience was actually those who attended at least one talk, but we assumed that someone who registered but did not attend would not take a survey about something they did not experience, and the cover letter opened “Thank you so much for attending at least one of the lectures in our series. . .”)

SiS based its survey questions (with permission) on the Religious Understandings of Science Study, led by Rice University professor Elaine Howard Ecklund [7], as a part of the Perceptions Project, an AAAS initiative. Ecklund’s study is a mixed-methods effort comprising 248 participant observations (in 22 religious communities representing diverse traditions within Christianity, Judaism, and Islam) and 319 interviews, which informed a nationally representative general population survey of 10,241 Americans.

Our pre- and post groups of respondents were each predominantly comprised of people who did not work in a religion-related or science-related field. That said, potential for direct comparison is limited because the two surveys had slightly different goals, had overlap in only half of the questions, and the two populations targeted differed. Also, the sample size of the post-survey was quite small (16), though we were prepared for a drop-off, given that the post-survey targeted only attendees.

The above caveats should be kept in mind as we now state a couple of key findings.

The post-survey results indicated a large majority (88%) rated the programming as “excellent” or “good” and 75% said they would “definitely” or “probably” like to see more.

Perhaps the most salient and valuable survey finding was this question:

Which of the following BEST represents your view? I view religion and science as:

- Collaborative . . . each can be used to help each other
- Independent . . . they refer to different aspects of reality
- Conflicting . . . I consider myself to be on the side of science
- Conflicting . . . I consider myself to be on the side of religion.

Because programming aimed to move people more towards the first view listed, it was encouraging that the percentage of people who chose it in the post-survey (12/16 = 75%) was higher than those who chose it in the pre-survey (46/88 = 52%).

A related question that was only on the post-survey was “How much did this programming help you develop a more integrated view of Judaism and science?”, but unfortunately 11 of 16 skipped the question (all 5 who answered, however, chose “a lot” or “somewhat”).

## 7. Discussion and Future Directions

At the last talk of the series, we announced a page of readings and other resources<sup>2</sup> to support attendees in further exploring the topic. These mostly consist of papers recommended (or written) by our speakers or by the head of the granting organization, as well as links to other organizations and resources such as a Fall 2021 speaker series<sup>3</sup> in our congregational cohort that connects religion to data science.

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<sup>2</sup> The resources page is at <https://larrylesser.com/speakerreadings/>, last accessed on July 22, 2022.

<sup>3</sup> For more on the Fall 2021 speaker series, see <https://sinaiandsynapses.org/content/what-is-data-science-and-where-does-judaism-come-in/>, last accessed on July 22, 2022.

Some speakers in our math-and-religion series are certainly continuing their exploration. For example, on December 17, 2021, SiS announced Snezana Lawrence as one of 17 people selected for the fifth international cohort (2021-2023) of Sinai and Synapses Fellows to “raise the discourse on religion and science in their communities and beyond.” Kim Jongerius gave an invited version of her talk for a local church’s adult education series on elements of one’s field of study that inspire awe. And Larry Lesser reprised versions of his talk for the University of Maryland’s KEDMA and for the Bay Area organization New Lehrhaus. Prior Sinai and Synapses Fellows wrote all the articles for the Fall 2021 issue of the *Electronic Journal for Research in Science & Mathematics Education*. Perhaps another takeaway is just how common it is for those in the mathematical sciences to have a substantial interest in religious questions. For example, the first speaker has colleagues [23, 32] in his own mathematics department (at a public university) who have also published in this intersection.

In terms of possible future products (beyond talks), there is the potential to develop sourcebooks, not unlike sourcebooks in history [12, 14] or ethnomathematics [1] or math-through-a-religious-lens books such as [8]. The president of an accredited private non-profit university approached the first author about developing a math-and-Judaism self-study course geared to graduates from Haredi high schools or yeshivas, whose emphasis on studying Jewish texts may have left less room to take many mathematics courses.

We may also explore possible parallels in how a discipline tries to gently confront negative and false stereotypes about the subject that inhibit people from learning about it. One example may be books in the mathematical sciences that focus expansively on the real world, deemphasize or even omit proof and algebraic notation, and possibly incorporate humor. Book titles such as *Statistics for People Who (Think They) Hate Statistics* [30] recall the oft-quoted response of a rabbi to an atheist: “You know, the God you don’t believe in, I don’t believe in him either.”

And indeed, many religious outreach organizations go to great lengths to give a dynamic and relevant experience of religion, rather than calcified and judgmental. Perhaps parallels can be found in the promotional approaches of both realms to the extent that promoters of both religion and mathematics try to emphasize creativity, reflection, and conversation, and deemphasize all-or-nothing stances, contrived context, and mindless procedures.

Also, perhaps the different types of non-believers identified [35] can help us recognize counterpart stances in our less (or, more optimistically, “not yet”) interested mathematics students so that we can tailor more engaging interventions. Such a process, however, would need to consider that non-belief is perhaps more complex within Judaism in that many Jews have strong Jewish (cultural) identity despite little or no religious belief.

There is also room for further reflection on overlap between mathematics and religion. The speakers (especially the first two) showed how ideas of mathematics can help make sense of some elusive concepts in religion. This is more stable than when science tries to do the same, because mathematical findings are much more stable by their nature than empirical scientific findings. Rabbi Mitelman [25] gives the example of ongoing attempts to reconcile the cosmology of the Bible’s book of Genesis with the sequence of very different scientific models over the last century or so: steady state theory, big bang theory, inflation theory, and multiverse theory. No less fascinating is the other direction — namely, exploring how religious ideas have influenced what mathematicians have studied or created [4] that can be taught in a secular classroom.

We hope that attendees gained appreciation for how the realms of religion and science are not mutually exclusive. Mitelman names examples of books [3, 5, 27] that show how science has much to say about the efficacy of ritual or about aspects of morality conventionally viewed as belonging to the domain of religion, such as justice, empathy, and altruism. There is also room to explore further how mathematics includes ideas of ethics and religion. This is important because too often mathematics is seen as a “value-free,” context-free, “universal language,” but many examples show otherwise, including [6, 26, 34] and applying mathematics to realms such as predictive policing.<sup>4</sup>

Also, we believe attendees gained appreciation that the intersection of Judaism and mathematics is more than gematria (using numerical equivalents of Hebrew letters à la [2]) since none of the talks covered that topic. As the host congregation’s rabbi noted, “It meant a lot to our community that we did an ongoing series with conversations every two months rather than one-offs.

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<sup>4</sup> EDITORS’ NOTE: This current issue of the *Journal of Humanistic Mathematics* has a lot to offer to rebut the perspective that math is value- and context-free as its featured articles comprise a [Special Issue on Ethics in Mathematics](#).



This better reinforced a culture of sustained inquiry and openness to conversations that do not readily happen in religious communities.” In addition to positioning the congregation for further Judaism-and-STEM talks, the series also gave the congregation’s programming committee a model for possible future talks involving other areas of secular expertise that could be tapped (e.g., connecting Judaism to law, medicine, education, etc.).

The series’ use of local and global speakers illustrates the benefits of having global speakers (for more diversity of background and experiences) as well as local speakers (who may also have substantial knowledge, but also have the personal connections that increase local attendance). That said, the series also demonstrated the potential to build social capital and community from the local speakers alone because the congregation just happened to have a critical mass of several accomplished professors in mathematical sciences. Identifying other critical masses could lead to series such as “lawyers in the synagogue,” “doctors in the synagogue,” “educators in the synagogue,” “artists/musicians in the synagogue,” etc.

Given the available time and resources to identify and line up speakers who happened to have strong background in this unusual niche and who had a track record in communicating to general audiences, it was very satisfying to put together this well-received series of six events (the funders required a minimum of two) whose speakers had gender, geographic, religious, and academic field diversity. All potential speakers contacted were enthusiastic and willing to participate. However, while we found it relatively straightforward to identify speakers through personal referrals, Internet searches, etc., we had a much bigger challenge to identify potential attendees with this blend of interests and make sure that publicity reached them.

Another theme that emerged from post-series reflections is that while having all talks on Zoom played a major role in expanding access for potential speakers and attendees, there was something missing by not having time for informal interaction before and after the talks. In other words, beyond the period of time set aside for the speaker to answer questions, online events would be improved by including an option for small-group conversations (which can be done on Zoom through “breakout rooms”) and for a post-talk mixer/reception (which can be done online using a space such as Gather Town that allows people to move as avatars around a virtual setting, mingle with attendees, and join or form conversations in small groups).

We wrote up this experience to encourage others to emulate this kind of programming. We were inspired by the excitement at bringing together mathematics and religion, even among those who lack expertise in either. We believe creating such opportunities will help elicit interest in both fields. Perhaps most importantly, encouraging cross-pollination between these fields may create foundations for meaningful dialogue which cross boundaries contrived by culture, history, or prejudice. May those foundations better equip us more broadly to build together a healthier society.

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#### **A. Post-Talk Survey Written by Host Congregation**

1. What most inspired you to attend today? (check any or all that apply)
  - Interest in mathematics
  - Interest in religion
  - Interest in the intersection of mathematics and religion
  - Connection to the speaker
  - Connection to a sponsoring institution
  - Other: \_\_\_\_\_
2. What best describes your interest/involvement with mathematics? Mark only one oval.
  - Highly-developed or professional involvement
  - Moderately-developed lay interest
  - Occasional/casual interest

- Neutral; I don't seek or avoid it
  - Dislike
3. What can you tell us about why you answered that way?
4. What best describes your interest/involvement with religion? Mark only one oval.
- Highly-developed or professional involvement
  - Moderately-developed lay interest
  - Occasional/casual interest
  - Neutral; I don't seek or avoid it
  - Dislike
5. What can you tell us about why you answered that way?
6. What's a topic in the overlap of religion and mathematics you'd like to explore in a future session?
7. What do you see as a big hesitation people (not necessarily you) may have in exploring this intersection?
8. What do you see as the most important outcome (for you or for others) from exploring this intersection? (Personal edification? Cultural change? etc.)
9. Have you had negative or uninspiring experiences with mathematics or religion that you feel have hindered your potential interest in either topic? If yes, can you share with us?
10. Are you likely to invite a friend to join us for a future talk on the intersection of mathematics and religion? Mark only one oval.
- Yes! Tons of people I know would be interested in this!
  - Yes, I think I have one or two acquaintances who would care to learn about this.
  - I'm not sure.
  - No, I don't know anyone who is interested in this like I am.

○ Other:

11. Feel free to share any other comments you may have.

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