

MathOverflow

1. This proposal is for funds to continue the growth and development of the website MathOverflow (mathoverflow.net). MathOverflow is a site for research mathematicians to ask and answer questions about research mathematics. We have been active for 3 years, with 5500 participants answering questions, and about 1500 users asking or answering questions on the site each month. The users of the site are typically graduate students and professional mathematicians. There are 36,000 questions currently on the site, nearly all at a high mathematical level. MathOverflow has helped initiate many collaborations; it is now common to see mathematical research papers acknowledging MathOverflow.

With its growing database and user base, MathOverflow is rapidly becoming a key player in the mathematical information ecosystem. In order to maintain and strengthen its role in the community, MathOverflow must constantly improve its services to meet the changing needs of its users. Up until now, MathOverflow has survived and prospered without any formal legal foundation or clear administrative structure. Important decisions about the site have been by a group of moderators, with extensive input from the community, both through personal contacts and a public discussion board (meta.mathoverflow.net). With an eye toward the site's long-term survival, and in response to a changing relationship with Fog Creek Software and Stack Exchange, our

hosting companies, we have decided to incorporate and form a 501(c)(3) nonprofit organization.

2. MathOverflow is unique in its genre: it is the only Q&A site to cater exclusively to research mathematics. Other Q&A sites exist that cater to undergraduate and highschool mathematics (math.stackexchange.com) and cognate research fields (stats.stackexchange.com, cstheory.stackexchange.com). Not only does MathOverflow distinguish itself by its topic but also by its users, which range from graduate students and gifted undergraduate students to well established research mathematicians, including several Fields medalists: Tim Gowers, Ben Green, Vaughan Jones, Terry Tao, and Bill Thurston (who sadly passed away recently). MathOverflow provides a unique setting where research mathematicians can share and expand their knowledge with colleagues around the world as if they were colleagues down the hall.

3. MathOverflow was founded in September 2009 by a dynamic group of postdoctoral researchers and graduate students (who have since graduated) together with one senior advisor, Ravi Vakil (Stanford University). New members have been added to the original team, all active young researchers, keeping to the spirit of its original founders. The team currently consists of: Scott Carnahan (Tsukuba University), François G. Dorais (Dartmouth College), Anton Geraschenko (Google Inc.), Scott Morrison (Australian National University), Ben Webster (Northeastern University), and David Zureick-Brown (Emory University). This group has extensive connections in both the technology and mathematics communities and a history of involvement with bringing math to the Internet (for example, through blogging). For example, B. Webster was

awarded an NSF CAREER grant partly on the basis of his work online.

The current moderating staff are also the principal representatives of MathOverflow in the community at large. Group members have given several promotional and informational talks at events ranging from local department seminars to national and international meetings. In November 2012, F. G. Dorais represented MathOverflow at the Committee on Planning a Global Library of the Mathematical Sciences at the National Academies in Washington, DC. MathOverflow got a very warm reception from the committee members and made new connections with major players in the mathematical information ecosystem. The moderator group will use and strengthen these and earlier bonds to better link MathOverflow with other online sources of mathematical information.

4. First, we plan on incorporating MathOverflow and contracting the Stack Exchange Network to upgrade our software and provide support for future software enhancements. This is an essential step for MathOverflow to continue to provide the best possible service for the mathematical community. Legal precautions are also necessary to preserve the MathOverflow database of questions and answers and ensure that it remains freely accessible to mathematicians worldwide.

Then, we will apply for 501(c)(3) nonprofit status. This will allow us to continue operations supported by grants and donations from mathematical organizations such as the AMS, the SIAM, the IMU, as well as more general funding organizations such as the Alfred P. Sloan Foundation.

Once these two initial steps are made, we will have a firm position to enhance

and expand our services to the community. We will then organize a development meeting with moderators, interested users, Stack Exchange Network staff, and other interested parties to plan future improvements to MathOverflow. Already on the discussion table are plans to expand 'trackbacks' (described below) from the arXiv to other content providers and indexing services, and developing better tools to help users link their post with published literature.

5. The main output of this project will be that MathOverflow will upgrade to the most recent software version and secure continued technical support from the Stack Exchange Network. In addition, MathOverflow will gain a firm legal foundation to protect and maintain its growing database of over 30,000 questions and over 60,000 answers in all areas of mathematical research, and an institutional structure that can guide it through future challenges. MathOverflow currently incorporates some features linking it to the mathematical literature. As an example, questions and answers which mention papers on the arXiv automatically generate a 'trackback', allowing viewers on the arXiv to identify that discussion of a particular paper has taken place. At this point there are over 5000 trackbacks links from the arXiv to MathOverflow. We hope in the future to extend such integration with the literature.

6. While not large in the grand scheme of things, the costs of incorporation and application for nonprofit status (as detailed in the budget) are large for a start-up with no income stream and no intent to monetize; thus we hope to obtain external funding to cover these costs. We have already begun working with lawyers William Galkin (reviewing agreement with Stack Exchange) and Daniel Baron (handling forming the

LLC and applying for 501(c)(3) nonprofit).

7. We are not currently seeking funding from any other source, and have no previous grants from the Alfred P. Sloan Foundation.