

# Communicating STEM: How podcasting can help women in STEM become better communicators

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**Abstract**—Communicating scientific research and study has become nearly as important as the research itself. Podcasting is quickly becoming a popular medium for all sorts of science related content. The podcast, *Beyond the (Micro)scope*, sets out to provide a creative platform for women in all STEM fields to gain more exposure to media and practice being better STEM communicators. As a result of our podcast interviews, we have found that many of our female guests express lack of confidence in communicating the work that they do. As the interview progresses, our guests often become more comfortable and confident with describing their work and their passion in STEM. We have found that our guests are appreciative of the opportunity to talk about their work and are encouraged to pursue more science communication opportunities. The goal of the podcast is to promote the voice of women in STEM to a diverse audience.

**Index Terms**—STEM, Women in STEM, Communication

## I. INTRODUCTION

*Beyond the (Micro)scope* is a podcast that was created in February 2015. The goal of the podcast is to provide a platform for women in STEM fields to share their work, their experiences and their aspirations. As podcasts have been growing in popularity in recent years, notable science podcasts such as *StarTalk*, *Professor Blastoff*, and *Science Vs* have gained traction among general audiences [1]. One reason for this has been an entertainment-like approach, with the inclusion of comedians and science personalities such as Neil DeGrasse Tyson and Bill Nye. However, the lack of female guests on the shows has been a noticeable detraction from these podcasts. The gender gap in STEM fields has been an area of concern in both the general public and the STEM community [2]. The lack of women represented in “popular science” further propagates this disparity. *Beyond the (Micro)scope* aims to fill the gap in the podcast medium by interviewing women in a thoughtful, detailed discussion that focuses on the technical challenges of work in science, technology, engineering and math (STEM).

## II. STEM REPRESENTATION ON TV

To highlight the disparity of STEM representation in popular culture, we quantified the number of male and female guests on late night television. We analyzed six late night television shows from January 2012 to February 2017. This includes: “The Late Show with Stephen Colbert” (300 episodes),

“The Late Late Show with James Corden” (296 episodes), “The Tonight Show with Jimmy Fallon” (631 episodes), “Late Night With Seth Meyers” (495 episodes), “Jimmy Kimmel Live” (880 episodes), and “Conan O’Brien” (808 episodes). All the data came from official show websites and Interbridge Late Night Lineups <http://www.interbridge.com/lineups.html>. Wildlife experts, such as Jack Hanna, were included, while

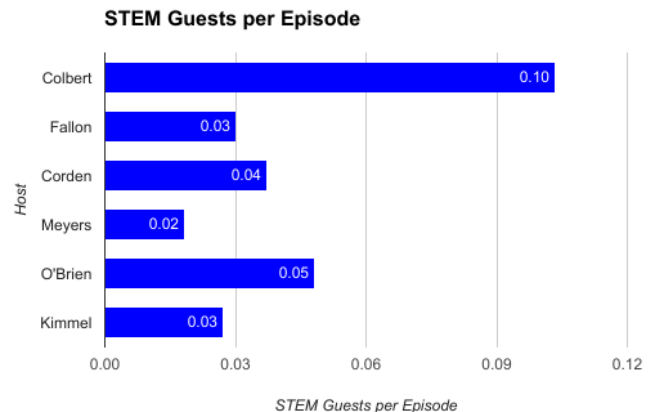


Fig. 1. The number of STEM guests per episode for the six television shows analyzed between January 2012 and February 2017.

Figure 2 breaks down the number of STEM appearances by gender. Analysis of these particular numbers would be meaningful due to the small sample size. However, the distinct lack of female guests is remarkable. James Corden’s “Late Late Show” and “Seth Meyers Late Night” failed to have a single female STEM guest over this four year period.

## III. OBJECTIVES

The objective of this podcast is to provide a platform for women in STEM fields and engage and inform others about what research and work is going on in the “real world” of science. Individuals in non-STEM fields are often unaware of the variety of scientific research being conducted and often are subjected to over-generalized statements and assumptions. For example, working as a biologist could mean studying human cells to the eating habits of mammals. The basic scientific tenants are the same but the variety in research topics and methods is vast. With our podcast, we hope to provide an

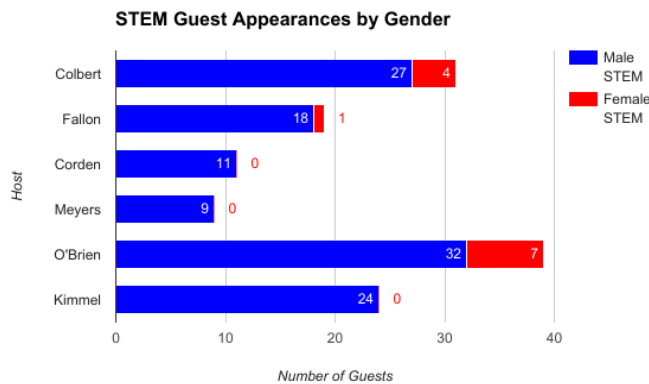


Fig. 2. The number of female STEM guests appearances for the six television shows analyzed between January 2012 and February 2017.

opportunity to highlight unique insights and perspectives. In one episode [3], we speak to a woman who is a trained forensic biologist who spent some of her career processing crime scene evidence. While discussing her day-to-day work, she addressed the common misconceptions about her field and how forensic science in the lab is drastically different than what we see in television and movies like “CSI: Crime Scene Investigation.” We aim to not only allow our guests to share their expertise but to also educate and inform others about what they are working on. On one occasion we assisted in introducing two of our guests to each other because they were interested in collaborating on future projects.

#### IV. RESULTS

As the podcast has progressed, we have noticed a common thread of shyness or insecurity when it comes to female guests and their confidence in their ability to speak clearly. As the dialog around science because more scrutinized, all members of the STEM fields must be able to accurately and succinctly communicate their research and the broader implications on society. The more clearly a scientist or engineer can communicate, the more resonance their message will have and the more effectively they can educate and inform those not in the field.

One of the most effective ways to improve communication about complex topics is to practice speaking to those who are not familiar with the specifics. Many people in STEM fields often operate within bubbles of others in their field and talking in research jargon can often go unnoticed. Our podcast gives women in STEM fields the opportunity to work on explaining and promoting their work to a broader, less technical audience. We have found that many of our guests are nervous or uncomfortable at first and often get stuck on explain complicated topics. As the episode progresses, we find our guests are more comfortable and often are able to better articulate their work in a way that is clear and informative. As with most journalism, relaying complex or sophisticated information can often resonate better when coupled with anecdotal experiences. Although most technical research does

not lend itself to “cocktail party stories,” being able to speak about interesting facets of your subject area in more casual environments can be a positive approach to communication.

The effect of podcasting does not just apply to our guests. We have found that through our experiences finding guests and conducting interviews that we have become better science communicators. As podcast hosts, we not only want to showcase our guests in the most engaging way but also have had to learn the best ways to ask questions that will engage both listeners and guests. Asking the right questions can be as valuable to the communication process as the answers.

We hope to that our podcast and the opportunity it provides to women in STEM will have long-term benefits. That could take many forms including increased confidence in communicating one’s work and more media and internet search exposure. We have also found that some of our most interesting interviews occur when our guest shares some personal anecdote that directly reflected their relationship with science. The main goal of producing and hosting this podcast was to provide a way for female voices to appear in “popular science” without overtly mentioning the gender issue in every episode. The mere presence of these voices, and the technical subject matter which we discuss, solidifies the presence of women in STEM fields.

#### V. FUTURE WORK

Our plan for this podcast is to continue to use it as a platform for women to get greater exposure with science communication. We intend to expand the reach of the podcast and grow our average number of listeners per episode. We also intend to reach out to more diverse women to help highlight the variety within the label of STEM. We believe science, and in particular women in science, is an underrepresented area in podcasting and that there is a large interest and market in featuring women in diverse fields. Future efforts include more data collection on listener demographics in order to quantify the effectiveness and reach of the podcast. The podcasting medium is still in its infancy and sources of data leave a lot of to be desired. We expect to continue producing episodes and blog content featuring accomplished women and plan to make a more concerted effort in tying our interviews to national news stories to better boost our audience and relevancy.

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