Expanding Your Academic Impact with Social Media Best Practices

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Integrating social media into your daily academic activities will connect you with a broader network of researchers, diversify your sources of knowledge, and expand your influence, provided you implement best practices in online communication.

When the academic conference emerged as the method of personally sharing research, the discourse of science and engineering was bounded by the limitations of “single-site” interactions. The modern conference brings people together but is expensive and often too broad, entropic, and formal for effective intelectual interaction. The scale and frequency of in-person meetings has diluted these opportunities to the point that an alternative method must supplement social and scientific interaction.

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The barrier to entering social media is low, and the daily time commitment is minimal. Social media engagement can frequently be incorporated into existing activities. But, social media in academia is more effective when applied in targeted applications via specific methods. The following best practices and recommendations ensure that you start out incorporating social media into your research activities in a professional, efficient, and impactful manner.

**Twitter for Science and Engineering**

The Twitter social media platform is a web-based and phone-tablet-based application for sharing and reading small bits of content. A “tweet” is a publicly shared message up to 280 characters in length that can include pictures, links to websites (e.g., publications), and videos (e.g., YouTube). Each account on Twitter is assigned a unique identifier handle (e.g., @MarcHillmyer) that can be used to identify and engage another researcher. Users can reply to messages or “tweets” with new content, or they can share and amplify the original “tweet” if they would like to share it with others.

To get started, create a Twitter account that will be associated with your academic persona. As shown in Figure 1, use your full name as listed in peer-reviewed publications, list the city of your home academic institution, and include the address of your department or research group website. Select a “handle” that is easy to remember and connects with you in some way, be it your name (@pauldauenhauer) or research affiliation (@catalysis_eth). Include a professional photograph of yourself and a professional background that is connected with your affiliation or research such as a campus photograph or a diagram of a material or molecule.

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https://doi.org/10.1016/j.matt.2020.02.017
Many institutions provide an internal library of professional photography for faculty to use in external media including images of campus, laboratories, and views iconic to the university. You should also provide a short biographical description; it is recommended to include your job title, affiliation, and any key connections related to your academic background such as editorial duties or startup companies.

Twitter and most social media exist as a network of connections. Other accounts can “follow” your account, allowing them to receive your posted messages or “tweets.” Similarly, you can seek out other accounts of interest to “follow,” after which you will receive their messages. To get started, it is recommended that you follow accounts relevant to your field including journals (@PhysRevA), organizations (@AmerChemSociety), and editors (@CarolynBertozzi). New accounts related to your area of interest will then be provided to as an option, after which you can build a network of interesting people and accounts.

A significant benefit of social media is the opportunity that derives from the highly branched network of connections, which exposes accounts to people and content outside their immediate bubble. As depicted in Figure 1, my immediate connections include journals, universities, research centers, editors, professional organizations, and students/alumni. But all of these connections further branch out into their networks. Each of these accounts has the opportunity to “share” content (i.e., repost content) with me, just as they can share my content with their network. The end result is that I am exposed to new people, ideas, papers, and opportunities, while my social media persona reaches people that I have never met before.

In my personal practice, using social media has added several unique experiences. Almost everywhere I travel now, students tell me they know me from social media (and then read about our research). An online discussion about the shape of tree branches led to a research project about calculating the fractal dimension of zeolites. A student said that he attended one of my conference presentations after I promoted it online. After posting pictures of the Parthenon in Athens, a Greek researcher asked if I could get coffee. A company offered to synthesize a chemical I needed after describing it online. And an editor of a prestigious journal attended my
student’s conference presentation after promoting his work in that journal at the conference. The use of social media in these cases expanded the impact of traditional methods of communication such as academic conferences.

Creating Content for Twitter
The style of content to share with your network of followers varies depending on the content type and targeted audience. Figure 2 lists eight examples of tweets created for different purposes, including announcements of new papers, presentations, events, and job postings. These tweets contain a short description; 280 characters are permitted, but shorter statements are more effective. Images that graphically communicate the key ideas can also be included to rapidly connect with readers. These can be paired with external links, the handles of other accounts (@NYTScience), or “hashtags” such as #AcademicTwitter.

Content can be shared to target specific communities and ongoing discussions of specific topics by using hashtags. In Figure 2, the tweet for a “call for abstracts” includes the hashtag #ACSSANFRAN. Anyone searching or using that hashtag will find your content along with other content related to the annual meeting of the American Chemical Society in San Francisco. Hashtags can group together people of similar interests (#ScienceTwitter, #AcademicTwitter), whereas other hashtags might address current news events (#Election2020), techniques (#MachineLearning), fan clubs (#CatStronauts), or ideas and technologies (#MOFs, #Zeolites). A quick evaluation of the social media accounts that use a particular hashtag will help you determine if it targets a relevant audience.

Human beings are visual creatures, and including an image along with text, links, and tags can quickly and effectively communicate an idea while also being memorable. As the majority of people interact through social media with a handheld device rather than a conventional personal computer, social media images are most effective when visually simple. On Twitter, the optimal images have a 16:9 aspect ratio, so shared photographs should be taken in landscape format. Diagrams and cartoons as shown in Figure 2 can be created in Microsoft Powerpoint and converted to image files (*.jpg, *.gif). These can be designed in the style similar to the graphical abstracts of journal publications to communicate a simple yet technical idea that connects with the readers.

Content does not need to be created. Tweets generated by another account
can be shared with your network of followers by “retweeting.” This passes along content and expands the reach of original material that benefits a larger community. It is also possible to “retweet” original content and comment at the same time. As an example in Figure 2, original content by Professor Omar Abdelrahman was retweeted along with my comment to promote a junior faculty member. An effective social media account is curated with the proper amount, frequency, and source of content for the people that are interested in you.

**LinkedIn for Industry and Alumni**

The social media website and web application, LinkedIn, provides an additional social media option that targets career professionals. Each account serves as a digital curriculum vitae and provides background details on interests, experiences, and skills. It is an expectation that users regularly update changes in their career including their current employer, job title, and location. This serves as a resource for finding and connecting with people in industry, especially when searching for expertise with specific capabilities and backgrounds.

The ecosystem of accounts is organized around a network of connections. One person can invite another person to connect, after which an accepted invitation makes available the full career information of an account. It also opens up the functionality of messaging between accounts, which is useful for staying connected to a group of people such as alumni as they move between different companies with different electronic mail accounts. Maintaining a set of meaningful connections has both immediate and long-term benefits for staying in contact with a selected group of people.

Accounts can also represent organizations, companies, and communities including academic departments. Forming or joining a LinkedIn group has the benefit of connecting people that might have common interests or a similar backgrounds or expertise. Content shared within the group can reach all of the members, including departmental news, alumni updates, or university events. As a member, you benefit from finding new, relevant connections and staying up to date on your community.

LinkedIn also provides a stream of posted content generated or shared by its users. Because this social media platform is more professional in general, this content is commonly selected from a more limited set of options. Common posts include news stories related to business or commercial developments and news, job postings, or new accomplishments including promotions, awards, or published materials. This material can be further re-shared through your network, along with a discussion of comments between users.

Generating effective content to share with your network requires careful consideration. Posts within LinkedIn are longer and involve career professionals who expect more formal presentation. Although sharing of news stories and publications can be meaningful to your connections, it is also possible to prepare multi-paragraph stories. These should be paired with graphics (again 16:9 aspect ratio), links to external sources, and hashtags that direct the story to a specific reader base (#materialsscience). Creating content approximately once per week will ensure that you stay connected with your broader network with only minimal effort and time commitment.

**Social Media Presence and Behavior**

Your online accounts create a social media persona that should match your academic persona, which is presumably professional, friendly, and open to communication. Students will interact with you on social media before they see you give a presentation or read your papers, so accurately presenting yourself online is critical to a longer, more meaningful connection. This includes a focus on positive interactions. Support other researchers, share exciting developments, and provide constructive feedback where possible. Be interactive, engaging, and interesting—share content that you enjoy and think others will find engaging and helpful.

Being positive and effective also means avoiding social media mistakes. The ability to share content quickly and broadly means that statements and information can be disseminated before careful consideration. This includes technical material that might require protection as intellectual property or statements that could be misinterpreted or taken out of context. There are also social media users that will actively pursue negative interactions; ignore these elements and block them from your account if needed. A good guideline to keep in mind is that it is never required to respond to anyone via social media. You choose the time and methods to share your ideas, breakthrough discoveries, and exciting news with your network and the world.

**ACKNOWLEDGMENTS**

I acknowledge financial support from the National Science Foundation Center for Sustainable Polymers (NSF-CSP) at the University of Minnesota (CHE-1901635).

**DECLARATION OF INTERESTS**

Paul Dauenhauer is a shareholder in Activated Research Company and Sironix Renewables.


