

BREAKING INTO TINSELTOWN

How to make it big in the movies

Planetary scientist Kevin Grazier needed a connection and a lucky break to become the adviser for *Battlestar Galactica* in 2004. Since then, the scientific community has established more formal ties to the entertainment industry, and the Science and Entertainment Exchange (SEE) in Los Angeles, California, is foremost among them. Part of the US National Academy of Sciences, the exchange is working to inject more science into films and television by linking up researchers and film-makers.

"Anyone can play now," says Grazier, who spent 15 years as a research scientist at NASA's Jet Propulsion Laboratory in Pasadena on the Cassini mission. Indeed, the SEE has provided more than 800 matches since its 2008 launch, says programme director Rick Loverd. Scientists' involvement can range from a quick conversation with a writer or director to consulting from inception to end.

The SEE has built up a database of more than 1,500 scientists, and can also draw on the 6,000-plus members

of the academy, Loverd says. Joining that database requires a call or e-mail to the SEE, followed by a chat between the exchange and the scientist to ascertain interests and expertise. When someone from the entertainment industry needs input, they contact the SEE, which then identifies the best expert and arranges an introduction. "We make it very easy for both sides to get involved," says Loverd.

Here are a few ways scientists can get exposure to Hollywood:

- The SEE, go.nature.com/pcxgsm
- The UK Wellcome Trust and British Film Institute Screenwriting Fellowship, go.nature.com/ybzy68
- The German Mathematics, Computer Science, Natural Science and Technology and Equal Opportunities in the Fiction Format, go.nature.com/qfiava
- The US Imagine Science Films, go.nature.com/ubta9d
- The US Alfred P. Sloan Foundation's film-schools programme, go.nature.com/i34efv **P.S.**

are giving a talk or a lecture, you are putting on a show, like it or not," he says. "I've probably picked up a few things." (That would not include skills enough to write for the show. He suggested some jokes once: the writers politely advised him to stick to the science.)

California planetary scientist Kevin Grazier, who has advised on several projects, including the 2004 reboot of the TV show *Battlestar Galactica* and the film *Gravity*, says that his role requires soft skills and a thick skin (see 'How to make it big in the movies'). Both develop over time on the job, says the lecturer at Santa Monica College in California. Success requires building relationships: especially in TV where writers and producers can work together for years.

Writers generally respect scientists as long as they are not obstructionists who insist that a plot point cannot be pursued because of an obscure principle that most viewers would neither know nor care about. Grazier says that he has the most success when his suggestions open up story possibilities, not when they slam the door on ones the writers had developed. "You don't want to go in and say 'You can't do this, this or this,'" he says. "If your alternative leads to a better storyline, fine."

Theoretical physicist Sean Carroll, who advised on *Tron: Legacy*, adds that science advisers need to remember that they are not a principal investigator on the film set: that would be the director, showrunner

or producer. "Part of what makes you a successful science adviser is humility," he says.

Carroll, from the California Institute of Technology in Pasadena, says that his personal satisfaction comes not just from creating a more realistic scientific universe in films, but also from subtly introducing people to science. He points to his work on the movie *Thor* as an example. "It was a movie version of a comic-book version of a Norse god: not something you would associate with accurate physics." But he made a few subtle but profound suggestions and added accurate language about worm holes and travel through space and time.

The film-makers also wanted the Natalie Portman character — a nurse in the comic book — to have a more lofty profession, so he suggested that she be an experimental physicist and helped to shape her character. He wanted girls to see the film and realize that a science career could be possible, and desirable, for them.

Kakalios hopes that positively framed scientist characters — shaped with the help of science advisers — could even help to bolster funding for science down the road. Sometimes funders need to see the possible in a fictional context before they can make it real, he observes. "It could," he says, "be a case of superheroes saving science." ■

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GENDER

Perception differences

Female leaders underrate how their bosses and colleagues perceive their performance, find US researchers (R. E. Sturm *et al.* *J. Org. Behav.* **35**, 657–677; 2014). In a two-part report examining responses from 270 women across sectors including health services and banking, the authors find that lack of self-confidence, perception of gender roles and a lack of direct feedback from superiors contributed to women's self-underrating. Female managers also rate their own performances lower than do male leaders, the team found. Women in leadership positions must become aware of any negative self-biases, says co-author Leanne Atwater, a management researcher at the University of Houston in Texas. "If you're unsure of your boss's feelings about your work, get feedback and don't make assumptions," she says.

FUNDING

Irish entrepreneurs

The Irish Research Council in Dublin has launched an industrial PhD and master's programme that will place 70 postgraduate- and graduate-level researchers with businesses and non-profit organizations. Some 60–70 employers are joining the Employment Based Postgraduate Programme to help student researchers to develop innovation and entrepreneurial skills that should prepare them for entering the non-academic research workforce. The council contributes €24,000 (US\$32,700) for each student, who receives a salary from the employer. Council director Eucharía Meehan says that the programme provides junior researchers with career options.

UNIVERSITIES

China's rankings rising

China's higher-education star is rising, while Japan's is waning, according to the *Times Higher Education's* Asia University Rankings 2014. Japan dropped two institutions from the top 100, whereas mainland China added four. But Japan still leads the Asian nations with 20 top-100 universities; China is second with 18, and South Korea third with 14. Thomson Reuters, which collates the data, bases the rankings on 13 indicators, including research and technology transfer. China has advanced mostly as a result of increasing its research expenditure, says a Thomas Reuters spokesperson, whereas Japan's research budget has remained flat.