When two worlds collide

One half of a physics couple that met online, **Jennifer Ouellette** seeks some advice from married scientists on how to handle both long-distance and up-close relationships, while juggling career and family. Can love survive?

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Last October, I became engaged to Caltech cosmologist Sean Carroll, capping six months of a long-distance romance that began via our respective physics blogs. Our his-and-hers blog announcements garnered the proverbial 15 minutes in the online scientific community, and it didn't take long before someone asked: "So, will you be relocating to California?"

Of course I will move to Los Angeles from Washington DC. Like any romantic, I would move mountains to be with my beloved; a cross-country trek, yowling cat in tow, is trivial in comparison. Sean is well worth that and more. But then I'm a self-employed science writer. You can give me a mobile phone, a laptop and a high-speed Internet connection, and I can do my job from almost anywhere.

Alas, scientists who marry scientists can't always get it together quite so easily. There is a daunting obstacle to be overcome: they must find jobs not just for themselves, but for their spouses. This is the 'two-body' problem: a reference to the challenge of calculating the paths of two objects interacting with each other. Mathematics solved the two-body problem long ago, but married scientists still struggle with it.

What little hard data are available show that they are in good company. According to several surveys of European scientists at least half of all scientists questioned have partners who are also working in science (H. L. Ackers *Gender, Mobility and Career Progression in the European Union: Final Project Report*; European Commission, Brussels, 2005). The problem is most acute in the natural sciences, says Londa Schiebinger, an expert on gender in science at Stanford University, who is heading up a US-wide survey of dual-career academic couples, building on a pilot programme at Stanford. Such a study is badly needed as there are very few hard US statistics on the matter — and those figures that do exist tend to be out of date. Schiebinger's group will survey more than 30,000 faculty members from the top US research universities, and conduct follow-up interviews and focus-group discussions.

One question the team hopes to answer is are such marriages tougher for female scientists? Besides being a minority in their field, female physicists struggle with the two-body problem more often than their male counterparts. A 1998 survey by the American Physical Society found that although only about 6% of its members are women, 43% of these are married to other physicists. In contrast, only 6% of married male physicists have a physicist spouse. Other studies have found that almost twice as many women chemists are married to or partnered with another chemist as

compared to their male colleagues, and 80% of women mathematicians are married to other scientists.

For most female scientists, the benefits of an intellectual connection with their partner probably outweigh any hardship. I certainly appreciate finding someone with whom I can discuss ideas, who continually challenges my assumptions and helps me view things from a different perspective; how much more true this must be for couples pursuing similar scientific careers.

According to Schiebinger, nirvana for married scientists in academia is two faculty (tenured or tenure-track) positions at the same institution or in the same area. Less desirable options include shared positions at the same institution, or one partner getting a tenure-track position while the other makes do with a lower-level lectureship or part-time position.

The course of true love

Back in 1976, physicist Ruth Howes didn't have that many options when she followed her husband Bob, a professor of dentistry, to Oklahoma. She took a temporary position, against the advice of her thesis adviser, and soon found herself unemployed. She worked part-time and focused on raising their children, but grew frustrated. "Nobody would hire me in Oklahoma," she says. The nadir came when a small private college refused to hire her because she insisted on teaching stellar evolution in her astronomy courses. "They didn't want any form of evolution taught," she says.

So when Ball State University in Muncie, Indiana, offered her a full-time position, she accepted, even though it meant living in different states while her children were quite young. "In those days, if you told people you were going to have a commuter marriage, they assumed you were getting a divorce," she says. "So we were a little ahead of the curve." But the Howeses made it work for 25 years by following two rules: "Talk every day, no matter what, and have a home for both partners on both ends. Both places should be home," says Howes, who now chairs the physics department of Marquette University in Milwaukee, Wisconsin.

Combining a family with a commuter marriage adds yet more complications, Howes acknowledges. As in physics, the many-body problem becomes much harder to solve.

For a year, Howes and her husband tried splitting their two children between the two households. From then on, the children lived with Howes while her husband did the commuting. She discovered that her children were very resilient. "They took it in their stride," says Howes, and became adept at packing. Although she worried about the potential psychological damage to her offspring, they didn't think it was so bad: "Every other weekend, we would basically freeze time. It was family time, and very special."

"Like any romantic, I would move mountains to be with my beloved."
— Jennifer

A few years ago, Bob Howes retired and joined his wife in Muncie. "That's something hardly anyone talks about: putting it all back together again," she says, admitting that initially there was conflict as the couple readjusted after so long apart. "The two-body problem is rough no matter how you look at it." They ended up buying a bigger house. Not only did it give each of them more space, it was "neutral ground". They also bought a second home in Santa Fe, New Mexico; remodelling that home in anticipation of Ruth Howes' retirement is a shared project.

Long-distance romance

Thirty years on, many scientific couples still opt for commuter marriages, at least at the beginning of their careers, rather than sacrifice one partner's dreams to the other's. A physicist friend of mine, Diandra Leslie-Pelecky, says: "If you both want to be high-powered researchers, you are limited in your choice of jobs, because there may not be many places with strong programmes in both areas." Now at the University of Nebraska in Lincoln, Leslie-Pelecky spent the first nine years of her marriage to fellow physicist Robert Hilborn commuting between Nebraska and the University of Massachusetts in Amherst. (Hilborn got a job at the University of Nebraska late last year.)

Do they have any advice for newlyweds, or soon-to-be-married scientific couples? "Both partners should win Nobel prizes," jokes Hilborn, thus giving them their pick of academic appointments.

For those of us whose last name isn't Curie, one or both partners must inevitably make concessions, and it might take longer than they would like to achieve their professional goals. Unlike Howes, Leslie-Pelecky opted not to have a family, a decision she is happy with. But she cautions that although both partners should be willing to make sacrifices, "if you compromise too much, you can limit your choices for future positions. The last thing you want is to have one partner feel that he or she got the raw end of the deal."

Chemist Julia Fulghum, of the University of New Mexico, Albuquerque, agrees. "We have tried hard to find positions that are a compromise for both of us, rather than ideal for one person and a bad fit for the other," she says. After spending a year apart from her husband and fellow chemist Stephen Cabaniss while he was a postdoc, they decided they didn't want a commuter marriage, especially as they knew they wanted children. Initially, their new positions were more limiting than they might have

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Edmund and Laura Gerstein on their wedding day (top inset) and during their manatee research.

liked, but over time, each established successful research and teaching programmes.

They now both have tenure. In fact, they've pulled this trick off twice. They found dual tenure-track positions at Kent State University in Ohio, before moving to their current jobs. But they had to make some trade-offs along the way. Both applied to a swathe of different academic departments, and they didn't put any geographical restrictions on their dual job search. That proved to be a key factor in their success, even though finding that first position took two years. In the interim, they both turned down attractive jobs at other schools, rather than live apart.

"Every couple has to figure out the issues that are most important to them," says Fulghum. "You have to be honest with each other about what is and isn't acceptable." So perhaps the Valentine cards have it right, love is communication. "We know couples that have made every possible combination work, and others who are miserable," says Fulgham.

> **"Every couple has to figure out the issues that are most important to them."**
> — Julia Fulghum

The flip side of the commuter marriage is the danger of too much togetherness, particularly for scientists who marry their bench partner. What if your careers mean you end up sharing office space or writing papers together?

The things we do for love

Edmund and Laura Gerstein have tested their togetherness to the extreme. They are married scientific collaborators at Florida Atlantic University in Boca Raton, specializing in animal acoustics. Not only do they work at the same institution, they once spent three-and-a-half years living in a small trailer behind a zoo — the better to study the acoustic behaviour of manatees. The couple endured extreme close quarters, no private bathroom, bizarre hours, and the occasional rampaging elephant knocking into their trailer. "It got to the point where we didn't really have to talk, we could just kind of grunt at each other to communicate," says Edmund.

They sometimes joke that it's a miracle they are still together, but during the experience they figured out an efficient division of labour that Edmund says helped their research and relieved the inevitable tensions produced by constant togetherness. For instance, Laura handled the computational aspects of the project while Edmund worked with the animals, putting some much-needed distance between them, at least during work time.

Does having similar research areas help or hurt a job hunt? Fulghum believes too-similar fields can be more of a disadvantage for younger, less established scientists. "I've frequently observed a sometimes conscious, sometimes subconscious, tendency for faculty evaluating two junior people to assume that only one of them can be 'good,' or that they have to figure out which one is 'best,'" she says, adding that this is less of a problem at the senior level because you are judged more on accomplishments.

For Fulghum and Cabaniss, the overlap proved advantageous, because Kent State was interviewing for two positions, and their research areas were sufficiently different: she works on materials characterization, and he specializes in environmental geochemistry. The University of New Mexico's policy encourages hiring spouses if one member of the couple is being actively recruited, and the relevant departmental heads worked to bring about the dual positions. Yet the couple also interviewed at less progressive universities that "made it very clear they were not interested in having a couple in the department", says Fulghum.

One rarely discussed aspect of the two-body problem is divorce rates. Certainly there have been scientific couples, some quite prominent, for whom the challenges proved too great. But the frequency of such breakdowns is unknown.

If all this anecdotal evidence proves anything, it's the need for the comprehensive Stanford survey currently under way. A report on the findings will be released later this year. The hope is that it will provide data to back up personal experiences, so that universities can formulate the best policies for their married faculty members.

In the meantime, I've gleaned some useful titbits of advice and encouragement (see 'Tips for newlyweds') for my own foray into marriage. No doubt there will be a few bumps in the road ahead as Sean and I adjust to life together, but we're ready to take the next step. Fortunately, we're both good communicators, as our blogging activities and six-month bicoastal love affair show. And we won't have the two-body problem. That gives me confidence in our shared future; the rest — well, it's mostly logistics. ■

Jennifer Ouellette is a freelance writer currently based in Washington DC.

Practical view: family life for the Fulghums came before their careers.

Tips for newlyweds

If you're looking for a dual appointment

♥ Be willing to make some compromises. Make sure you agree on what's acceptable and what's not in your careers and your family life.
♥ Publish. Then publish again. The more brilliant the candidates, the easier it is to place them.
♥ Be active in professional societies to gain recognition in the wider research community.

If you're going to have a 'commuter marriage'

♥ Communicate. It's important to talk every day, no matter what.
♥ Both partners should feel at home in both cities, with belongings in both locations.
♥ Make your time together count by clearing your respective schedules.

If you want to start a family

♥ Alternate your work or teaching schedules so that one partner is always available to stay home with a sick child. This saves on childcare costs.
♥ Set aside 'family time' so the children build healthy relationships with both parents.
♥ Look for a department with 'family friendly' policies and a supportive infrastructure.

If you're putting it back together after years of commuting

♥ Make sure each of you has a private space in the home where you can retreat if necessary.
♥ Expect some friction at first, as you adjust to the compromises of communal living.
♥ Consider buying a new house, or embarking on a joint project in which you are building your future together. **J.O.**

Share your valentine stories on *Nature*'s newsblog at http://blogs.nature.com/news/blog/2007/02/scientists_in_love.html