

Helen Clemens

Mathematics

ISSUES: international reputation and spousal concerns

Helen Clemens, Ph.D. in Mathematics from New York University, joined a prestigious research university as an assistant professor of mathematics, specializing in differential equations related to self-organizational phenomena and chaos. She was hired the same year and in the same department as her husband Joseph Smith, an up-and-coming star in set theory and fractals who was hired after working three years as an assistant professor at Yale University.

Clemens quickly established a reputation as an excellent teacher of mathematics majors. Her upper-division course in her specialty field became one of the department's most popular courses for majors. She also became known as an accessible graduate advisor who took great care in mentoring her students' professional development.

Clemens was invited to give many international presentations in her area and to become a member of a significant number of conference program committees. She was also a frequent speaker at meetings of physicists interested in application of her mathematical tools to physical systems. Some of her university colleagues in other research areas suggested that her frequent invitations to participate in workshops and panel discussions reflected diversity needs rather than acknowledging her intellectual acumen. Others claimed she rode on the coattails of her husband, her sometimes collaborator. While Clemens' international experiences were prestigious, they often required her to travel to Europe for meetings. She was consequently less accessible to colleagues than most peers. Most of her time on campus was spent teaching courses, advising students, or serving on institute-level committees.

By the time of her third year critical review, she had published only five articles, albeit in important journals. Her husband collaborated on two of these; on one, Clemens was first author, and on the other he was first author. Their achievements were the subject of an article in *The Chronicle of Higher Education* about successful couples in the sciences. Clemens and Smith were also profiled in national newspaper articles focusing on emerging connections between biology and mathematics. Smith had established strong interactions with the biology department in applying concepts of fractals to complex hierarchical cell structures. The committee considering her third year critical review recommended warning her to accelerate publication. Her chair advised Clemens to "concentrate more on publishing and less on publicizing."

In her next two years, Clemens worked hard to publish in significant refereed journals, producing four papers (one in tandem with her husband) and three articles in conference proceedings. In addition, she was listed as co-PI on one of his grants.

In coming up for promotion and tenure, Clemens was considered an excellent teacher by undergraduates and graduate students and an excellent mentor of women students. Her publication record was a bit below average, but her citation rate was higher than average, and she was well known in Europe, for example. Letters from reviewers, two of them prominent European mathematicians, characterized her individual work as "very good," "substantial," and "first-rate." Articles written collaboratively with her husband were cited as "highly influential" and "amazing." There were no negative reviews.

Questions arise in the unit-level promotion and tenure committee regarding whether Clemens' record of individual productivity meets the minimum standard and whether her productivity and the impact of her work depend on her husband. One member wonders if Smith (already tenured and promoted) will leave if Clemens does not get tenure. As a member of the committee, how would you respond to these concerns?

Pam Lee

Bioengineering/Nanotechnology

ISSUES: fluctuating productivity of a maturing scholar, ethnic/cultural differences

Pam Lee, Ph.D. in Bioengineering from the University of Michigan, was hired by a prestigious research university. Although she is one of a dozen bioengineers on campus, she is only the third specializing in nanotechnology and replaces a retiring star in the field, someone considered an anchor of a graduate program ranked in the top three in the nation. Lee's very prominent graduate advisor highly recommended her as his best student in the past decade, indicating that her dissertation was "groundbreaking" and "revolutionary" in creating new innovative analyses of biological materials.

A deferential, somewhat quiet person unless probed about her research, Lee had a rocky start with her university colleagues and students. Some undergraduates complained to the undergraduate coordinator about her accent, and some graduate students reported that Lee is "too rigorous" "especially concerning mathematical modeling." Although the preponderance of faculty in the department see Lee as merely "young" and "a little shy," two faculty members express concerns to the chair during her first term about Lee's "inability to socialize" and "fit in." The chair, also an Asian immigrant, regarded Lee as undergoing the typical adjustment period of a new faculty member struggling to shift from star graduate student to novice teacher while keeping up a high research profile. The chair encouraged a sympathetic senior faculty, not directly in her research area, to mentor her. After an initial lunch meeting with Lee to offer his mentoring input, the senior faculty member drifted away from the arrangement, too busy to set appointments.

During her first three years at the university, Lee presented four conference papers on sophisticated, technically rigorous analysis methods, complementing the work she did in her dissertation; she also published one additional journal paper based on her dissertation. She improved her undergraduate and graduate teaching ratings by working with professionals at the university center for teaching and managed to attract two graduate students to work closely with her. She also expanded departmental offerings in her field and created an undergraduate course in nanobiology.

At the time of her third-year critical review, her chair conveyed the review committee's warning about her lack of publications. He encouraged her to stay in touch with him and to work closely with two other colleagues "to generate more papers." After being initially taken aback by this criticism, Lee agreed with her chair that she would "appreciate some advice." She sought out faculty her chair helped identify as her mentors, sharing two new conference papers with them and asking them for editorial criticism and guidance on improving her publication record.

Although the two mentors worked in different fields, they recognized that Lee's papers were hampered by her awkward written English. One suggested that Lee improve her grammar and general writing skills by studying an English composition text, and the other encouraged her to read *The Wall Street Journal* and some American novels to develop a more fluid style.

Lee worked hard to improve her English and accepted the offer to collaborate on an article with one mentor. He devoted time during the process of co-writing to show her how to put together a scholarly argument, and he helped her understand how they could manage the journal reviewers' comments in revision. Lee's other mentor took a less active role in improving her productivity, suggesting two applications of her theoretical method that might prove promising. She wrote one paper designated for

a journal suggested by this mentor, who offered comments before she mailed it off. Benefiting from the advice and contributions of these senior scholars, Lee managed to get two articles (one collaborative) accepted in her fourth year. In her fifth year, she wrote two archival papers, one with her previous collaborator and another on her own, which were also published. Her mentors complimented her on greatly improved writing skills.

One mentor, fascinated by Lee's application of her method to his subfield, developed and submitted a proposal for funding based on this method to an agency, citing their joint paper as the basis for the work. However, Lee was neither consulted nor included in the development of the proposal or as a co-investigator. She was visibly upset when she learned of this from another colleague who commented that he understood that her mentor was now working in the same field; confronting her mentor, he informed her that there is no monopoly on good ideas and he was in the best position to develop this premise within his own subfield. With that, the mentoring relation ended, but Lee decided to keep the situation it to herself given the fact that the department chair had recommended this mentor and was his close associate.

Three letters of reference commenting on her tenure and promotion case were very positive, indicating that her publications posit original, rigorous theoretical claims. Two others referred to further interesting applications. The sixth highly positive letter comes from a senior scholar, known for being Lee's mentor's first graduate student. By the time Lee comes up for promotion and tenure, she has published twelve scholarly articles (one in *Neuron*, the leading journal in the field), given an average number of conference papers, and participated on two department committees. A member of the promotion and tenure committee questions whether this level of productivity justifies promotion and tenure at the university. Another member cites that he has input from a former mentor that Dr. Lee is intelligent but is difficult to communicate with and to work with. As another member of the committee, how would you respond to these concerns about Lee's productivity and collegiality?

Samia Mansour

Chemistry

ISSUES: significance of letters of reference and what kind of service counts

Samia Mansour, Ph.D. in Biochemistry from the Johns Hopkins University, was hired as an assistant professor by the Department of Physical Sciences at a prestigious research university. Mansour's research field has long been central to the university; she joined a number of colleagues who do similar and complementary work in the same field. Her start-up package was slightly better than average; she had four offers to consider at leading universities. Mansour was immediately asked to participate in a campus committee charged to study why so few women are employed in science during her first year. In her second and third years, she was invited to serve on two similar committees at the university level.

During her first three years at the university, Mansour produced an extraordinary number of publications in the top-ranked journals in her field, including one prize-winning paper. She wrote most of her papers with a small group of faculty and graduate students, but some represented collaborations with just one or two individuals, typically graduate students.

Mansour's funding level as an assistant professor was within the average range for her field and slightly higher than the departmental average. She was able to secure a lab budget based on a National Science Foundation (NSF) grant for new faculty in her area as well as some training grants for individual graduate students. She also partnered with colleagues in developing novel methods of drug delivery on a moderate grant from a pharmaceutical company.

In her third year, she won an NSF Faculty Early Career Development Award, largely for writing one paper that garnered much national attention for its novel approach to a particular problem. Near the beginning of her fourth year, she was notified by the NSF that she was selected as a recipient of the prestigious Presidential Early Career Award (PCASE).

Her undergraduate and graduate students generally awarded her good teaching scores. Evaluations for the intro-level undergraduate course earned some negative comments from a few students about her casual attire; as a result, Mansour upgraded her wardrobe and began to wear tailored clothing. She attracted excellent graduate students to her lab, encouraging some undergraduates to continue graduate study at the university and welcoming new graduate students. At the end of her third year, she was nominated for a college teaching award by the undergraduate coordinator with a recommendation from the graduate director who cited her "dedication" and "long hours of working in her lab along with graduate students."

In addition to her work on women's issues, Mansour was appointed to a number of unit and college committees concerning visiting speakers, honors, and searches. She became especially active in a professional society and in her college's network for junior faculty in sciences, for which she helped organize a session on grant-writing for new faculty. Issues concerning women in her unit, and to some extent in sciences more generally, fell on her shoulders, as manifested by numerous invitations by chairs and deans at her university to address student and alumni groups.

During her fourth year, Mansour consulted with her chair about coming up for an early decision on promotion and tenure. As she had established a body of work and a set of achievements comparable to or exceeding others in her field in her unit, she and her chair were confident of her chances to be

promoted and receive tenure on this accelerated schedule. He had found her agreeable to serve in a broad range of roles at his request and considered this along with her PECASE as indicative of well-balanced roles and strong scholarly potential.

At the beginning of her fifth year, Mansour's case came up for review in her department. The letters of reference in her promotion and tenure dossier were generally good, except for one taking issue with her celebrated paper. The one negative review avoided addressing Mansour's entire scholarly output; instead, the reviewer took an extremely hostile approach to the argument of the celebrated paper. One member of the promotion and tenure committee noted that this review was so detailed that it could have been published as an oppositional argument in a journal along with Mansour's paper. This reviewer also commented negatively about Mansour's style of presenting papers at meetings of a professional society, raising some suspicions of a personal grudge. Another reviewer commented as much on the value of Mansour's service to the profession, especially for women in her field, as on the value of her scholarly research.

The unit promotion and tenure committee is split about whether to emphasize the negative review or the one privileging service and whether Mansour's case should be forwarded to the next level. One member expresses the view that her case should be eliminated from further consideration this year, ideally by having the chair of the department speak with Mansour about the negative review so the candidate can withdraw the dossier. This member suggests that next year the hostile reviewer and the one who supplied the review focusing on Mansour's service should not be invited to submit reviews and that her case would have a better chance of success if it comes up according to schedule, rather than early.

As a member of the unit-level promotion and tenure committee, what consideration would you give these reviews in evaluating Mansour's scholarship and career? What would you suggest regarding whether Mansour's case ought to be considered early or during the next year?

Jamie Perez**Materials Science and Engineering****ISSUES: evaluation of collaborative research, constraints regarding courses/lab equipment, graduate students**

Jamie Perez, Ph.D. in Materials Science and Engineering from MIT, joins a prestigious research university as a tenure-track assistant professor after completing post-docs at Berkeley and Northwestern. At the time of hiring, the search committee notes a one-year gap between post-docs, a time when Perez studied as a Fulbright Scholar at a European university. Support for his faculty slot is earmarked from the Dean's office for the first two years of the appointment by virtue of an underrepresented faculty hiring initiative.

Perez's start-up package was average for faculty in that unit, but there are some glitches in finding adequate lab space and equipment. While he had been verbally assured during his negotiations that he could share the lab of a senior professor, Perez is told upon arrival by the senior faculty member in his interest group that the senior faculty member's group has priority, and he has limited Perez and his students to two hours per week in that lab. The chair then sent an e-mail to Perez about a change of plans, suggesting that he share a lab with another entering assistant professor until the following year, when the senior colleague moved to a new building on campus. Although somewhat constraining to the research programs of both individuals, this logistical arrangement encouraged the two new colleagues to collaborate on a small research project with some industry funding while also continuing their individual research agendas. The chair recommended at the first annual review that Perez "pay greater attention to research funding in areas more closely linked to the unit's focus" and "try harder" to attract graduate students.

In year two, Perez established a functioning independent lab, attracting a small number of graduate students, and published a paper in a journal about teaching undergraduates and one (with two collaborators) in a significant journal. The small amount of industry funding for collaborative research continued, and Perez was again counseled by his chair during the annual review to pursue more funding. In year three, Perez coauthored papers in two important journals, and worked as the sole materials science and engineering faculty member on a multidisciplinary project with four other faculty members from different engineering and science units. The collaborative, five-year project attracted \$5 million funding from the National Science Foundation and supported one post doc and three graduate students in Perez's lab. During this period, Perez taught only relatively large undergraduate service classes, as senior professors in his interest group claimed the specialty and advanced courses in his area (references on mentoring).

The third-year review of Perez's work resulted in a somewhat mixed evaluation. The school chair counseled Perez to "keep up the good work with teaching and service" but expressed his concern that Perez had not been able to secure more than a minimum amount of individual funding despite a very reasonable record of publication in top quality journals. The chair was also concerned that Perez had trouble retaining the more marginal graduate students assigned to him (the more promising students were assigned to the most senior faculty in the same interest group). During his review meeting, Perez requested that his chair exercise leadership over the interest group so that he can teach graduate courses in his field and therefore attract more and better graduate students. The chair suggested that perhaps Perez "instead ought to consider devoting more time to individual research, especially in an area more closely related" to the unit's interests and strategic plans to supplement his collaborative

work. The chair also expressed concern that Perez was not playing a leadership role in the interaction with other departments on the large NSF grant.

By the time of tenure review, it is clear that Perez did not emphasize pursuing any individual grant funding, as his chair suggested. Perez remained a popular teacher, according to evaluations of MSE majors, and a valued advisor as attested by some graduate students. He was somewhat more inclined than other faculty members in the unit to take on certain advising and other committee responsibilities. Although he attracted little individual funding, Perez was able to keep up a moderately active and fairly well-funded research program in an area not well developed in the unit because of the multi-disciplinary collaboration.

In the unit promotion and tenure committee, questions are raised regarding Perez's future funding potential as an individual researcher, as a teacher of graduate students, and the value of his area of research for the unit. As a member of the committee, how would you respond to these concerns and ensure that Perez receive a fair hearing?

Patty Shen**Biomedical Engineering****ISSUES: fluctuating productivity, leave of absence in probationary period**

Patty Shen, Ph.D. in Computational and Neural Systems from the California Institute of Technology, entered a prestigious research university as an assistant professor. She specialized in distributed computing and computation in neural and biological systems within the biomedical engineering group. Her start-up package was higher than average as her field was relatively new and required the purchase of some fairly expensive parallel computing and visualization equipment. Because Shen considered a competing offer, the department engaged in a bidding war to induce her to accept the appointment. Three other assistant professors in closely related areas were hired in the same year with packages not as generous as Shen's. At the end of Shen's first year, her chair complimented her on establishing "a good rapport" with her graduate students and for her success in publishing two papers based on her group's work, with two more in press.

Publishing additional papers in *Nature*, *Neuron*, *The Journal of Computational Biology*, *Current Biology*, and elsewhere, Shen continued her steady publication record through her next two years. She also took on responsibility for teaching one of the core courses for the undergraduate program and for introducing a key new graduate course in her area, earning above average and excellent evaluation scores from students. Exit interviews of seniors conducted by the chair indicated that all students appreciated Shen's thorough approach and that many, especially women, found her to be a valuable role model.

In her third year, Shen won an NSF Faculty Early Career Award. In addition, during her probationary period, Shen and two junior colleagues, along with two senior professors, developed a new center in biocognitive processing that was nurtured by the university before attracting a good deal of National Science Foundation funding.

Anticipating the birth of a child during the summer following her third academic year at the university, Shen requested during the prior spring two considerations: to receive an unpaid leave of absence during the subsequent fall term and to be released from teaching duties during the following spring under provisions of the university's Active Services Modified Duties Procedure. In lieu of teaching responsibilities in the spring, she proposed to design a new elective for upper-division students in her field and to continue working with the center that she helped develop. Her requests were granted, thereby stopping her tenure clock for one year.

During the year of her leave of absence and modified duties, Shen laid out plans for the new course and published two papers that had been in process. Unanticipated post-childbirth medical complications necessitated a long period of medical therapy, and she was unable to devote much time to her research during the time away from teaching as she was also coping with the demands of an infant. A private person, Shen did not share information about her medical condition with her colleagues, excepting her chair and dean whose confidence was requested because Shen needed them to support her need for a particular schedule and for a limited set of service responsibilities.

During the following year, Shen's official fourth year of service, she returned to teaching and earned speaking invitations at European and Asian seminars. It is in this year (the year after her child was born) that her publication record revealed a demonstrable gap: she had not submitted any publications and

none were published in that year. Her own medical problems diminished her ability to mount focused technical efforts in the year following her leave.

By her official fifth year, Shen's medical problems abated, and she was able to accelerate her research productivity. In this year, she published and prepared more papers than any other professor in her unit and she received excellent evaluations from her undergraduate and graduate students, although she was able to contribute only minimal service efforts to her department given her family schedule. As her tenure clock was stopped for one year, Shen would have come up for tenure in her official fifth year. Because of the earlier gap in her publication, her chair advised her instead to wait until the following year (her official sixth) to come up for promotion and tenure evaluation. Somewhat reluctantly, Shen agreed.

By the time she came up for tenure (in her official sixth year and seven years after entering the university), her rate of publication dramatically increases, and her total record — in terms of the quantity and the quality of scholarly papers, her teaching evaluations and contributions, and her service — resembles those of the other assistant professors coming up for evaluation at the same time. Letters from reviewers indicated that Shen has a strong scholarly reputation and that her work has key significance for her field. One reviewer mentioned Shen's medical difficulties following childbirth, an admission surprising the committee members who had not been previously informed. Some committee members had noted in earlier, initial committee discussions that Shen seemed to "appear and disappear" on the scene through the years, recalling lengthy periods in which she was not in attendance at faculty meetings and retreats. Her involvement in faculty committees was minimal as well.

Her original cohort had already earned promotion and tenure, but Shen's stopping of the tenure clock for one year and her decision to wait until her second opportunity delayed her case another year. As a member of her school promotion and tenure committee, how would you respond to concerns raised by another member that Shen has taken too much time to get to the same place as others under evaluation that year, that she may have accelerated her productivity over the past 12 - 14 months simply to be more competitive in the tenure process, and that she might not be able to sustain such productivity in the future?

Robert Sorel**Aerospace & Mechanical Engineering****ISSUES: soft vs. hard research, joint appointment, advanced assistant professor**

Robert Sorel, PhD from Cornell in Aerospace and Mechanical Engineering, with a dissertation on computational methods for modeling ion propulsion systems for deep space exploration, joined the faculty of a prestigious research university as an advanced assistant professor jointly appointed to AE/ME (primary appointment in AE), after working four years in AE/ME at Princeton. Sorel moved to the new university for personal and professional reasons. He desired to move his family closer to extended family, and he wanted to collaborate more closely with the AE/ME research center on propulsion systems.

Sorel's research field is fairly new to the university, recently attracting attention to the work of a number of highly regarded researchers from respected programs of engineering and physics. After being at the university for one year, he published a paper with two colleagues and four graduate students in a top-tier journal. After two years at his new university, Sorel and collaborators attract a great deal of funding, some from NSF and some from the aerospace industry. They published their results in three of the top journals in the field on a consistent basis. Sorel published at a rate somewhat above that of his peers in such journals, but he maintained a funding level twice the average per capita funding in the AE department over the past four years.

The youthful, exuberant Sorel and a collaborator shared an award for a paper in his second year at the new university from a division of his professional society. The focus on their work earns Sorel a number of invitations to speak at international symposia, and sometimes other team members. The success of their modeling effort encouraged Sorel's team to start up a company consulting with aviation manufacturers. Although Sorel requested a one-year leave of absence to develop the company, his chair refused to grant it, citing the need for Sorel to establish himself at this university. The team nevertheless manages to spin off a company, which Sorel directs in his hours off campus.

Never assigned undergraduate courses, Sorel taught only graduate students specializing in his field. He received excellent evaluations from a relatively small number of students, who comment on how much they enjoy the competitive but social atmosphere of his classes and lab. He also advised a student receiving best student paper from professional society.

Sorel served as a member of departmental speakers' committee. Most members of his unit regarded him as a difficult person to work with and made every attempt to avoid collaborations in teaching and research. He was not appointed to any other unit committees, nor has he been appointed to higher-level committees outside the unit.

Letters of reference for Sorel provided at the time of promotion and tenure were very positive, noting his quick start in a cutting-edge field and the significance of his research. Two prominent potential referees that Sorel did not know personally declined the opportunity to send letters, citing time issues.

Discussion in the unit-level promotion and tenure committee centered on the intrinsic value of Sorel's work, questioning whether the computer modeling he was personally credited with developing was as significant as the "hand-picked" reviewers suggest and whether this kind of research was "substantial" enough to earn tenure. One member also raised the issue of Sorel's difficult personality as a problem

affecting the scheduling of undergraduate courses and his lack of service contributions. Another member cited discomfort with Sorel's manner of socializing with graduate students, hosting frequent social events with them, dressing casually like them, and spending considerably less times in social settings with faculty in the department, attending receptions for prominent seminar speakers, and so forth. This point was not picked up for further discussion. The committee chair recollects information he had heard at lunch about Sorel's startup company and how it had been pursued against the wishes of the department chair; the committee chair suggested that perhaps Sorel needed to decide where he wanted to devote his interests and energy – in academia or industry. As Sorel was not involved in committee work or in undergraduate education, some committee members see him as lacking interest in the basic mission of the university.

As a member of the committee, how would you respond to concerns that Sorel's research is perhaps too specialized and lacks novelty, that he is very difficult to work with, and that some references apparently were not interested enough for some reason to write on his behalf?