Late-Night Appearance Brings Prominence To 8.02 Instructor Fisher

By Ramya Sankara

"It’s like a drug," said Physics Professor Peter H. Fisher, referring to the 14 minutes of fame he got in a recent appearance on NBC’s Late Show with Conan O’Brien. Most of the time, Fisher researches dark matter. But for brief few days at the beginning of February, he found himself contemplating a more mundane problem: how to make O’Brien’s wedding ring spin on his desk for a long, long time.

Fisher appeared on O’Brien’s show on Feb. 8 as a guest to help O’Brien improve his ring’s spin time. Because of the Writer’s Guild strike, O’Brien’s show on Feb. 8 as a guest to help O’Brien improve his ring’s spin time. After discussing various possible spin methods, he settled on using Teflon. Some spins with Vaseline on the ring lasted more than 80 seconds during the rehearsal. (He set a 51-second record over video tape.)

Fisher, Page 11

P/D/F Option Proposed For Graduate Students At Feb. Faculty Meeting

By Shreyes Seshasai

Professor of Biology Stephen P. Bell presented a motion at Wednesday afternoon’s faculty meeting that would allow graduate students to take subjects on a Pass/D/Fail basis, similar to the option currently available to junior and senior undergraduates. The motion will be discussed and voted upon at the March 19 faculty meeting.

If the proposal is approved, graduate students would be allowed to take one subject per term on a P/D/F basis. The subject’s units would not count towards the total number needed to fulfill degree requirements, but the units would count against any unit restriction a student faces, such as those imposed by teaching assistant and research positions.

As the proposal stands, individual instructors may prevent students from using the P/D/F option in their subjects, and departments may also limit the use of the option.

The motivation for the proposal comes from a growing desire of graduate students to take subjects outside of their primary field of research, Bell said. Currently, graduate students can elect either to receive full grades or listener status. Some students hesitate to take subjects that might hurt their grade point average, especially when they only want to get exposure to a different field, Bell said. And subjects taken with listener status do not show up on transcripts and leave no lasting record that a student took the subject.

Professor Charles H. Stewart III

In Short

The cancelation deadline for the MIT Student Extended Insurance Plan is now Thursday, Feb. 28. Those wishing to waive the plan can visit http://web.mit.edu/medsci/caf waiver.html.

The spring final exam schedule is now available. See the schedule online at http://web.mit.edu/registrar/2008/exams.html.

Add date is Friday, Mar. 7: Remember to designate a sophomore or junior opponent for the March 7 meet.

Laptop security tagging is offered today in Lobby 10, from 9 a.m. to 11:30 a.m. For $10 cash, the MIT Police will affix a bar-coded plate to your laptop.

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Professor Charles H. Stewart III

MIT Drafts Response To Senate Inquiry On Endowment, Tuition

By Natasha Plotkin

MIT is compiling data to respond to the Senate Finance Committee’s request for information about the school’s endowment, financial aid, and tuition rates.

The committee sent this request to MIT and 135 other universities in the country with endowments over $500 million on Jan. 24, in light of increasing concerns regarding hikes in tuition and unprecedented endowment growth.

The request indicates that the Senate plans to more closely monitor university spending policies. Iowa Senator Charles Grassley (R), ranking member of the committee, described the purpose of the request in a Finance Committee press release: “We’re giving well-funded colleges a chance to describe what they’re doing to help lower tuition costs. More information will help Congress make informed decisions about a potential pay-out requirement and allow universities to show what they can accomplish on their own initiative,” he said.

MIT Vice President and General Counsel R. Gregory Morgan, who was available for comment, is coordinating the Institute’s effort to provide a response within 30 days, as the committee requested.

The MIT administration has expressed concern at the possibility of increased government monitoring or control over tuition rates. The Senate press release mentions that college tuition is rising faster than inflation, and that college endowments are exempt from the requirement that private foundations spend at least 5% of their assets each year.

President Susan Hockfield said at a February 20 faculty meeting that, in its request, Congress is being “very simplistic” about how schools manage their endowments. She said that MIT has “a strong position on financial aid” and, by among other examples, supporting a need-blind admissions policy and providing 62 percent of student financial aid.

She said that MIT cannot be compared with similarly ranked universities such as Harvard University and Yale University because MIT has a much higher percentage of students studying science and engineering, which are, in general, more costly than study in the humanities. She also noted that the financial backgrounds of MIT students are different than those of students at similarly ranked schools. MIT can “be much harsher” and Yale’s recent financial aid increases for middle income families without “creating support” for lower income families.

She held the faculty that MIT will make a public statement on financial aid early in March but that they should not expect any short-term changes in financial aid, such as those announced by Harvard, Yale, and most recently, Stanford University. Regarding the Senate’s mention of pay-out rules, Hockfield explained how endowment spending cannot be simplified to just a simple percentage, as MIT must take into account its various needs and the requirements of the 2000-2001 Tax Reform Act.

Keynote speaker Ray Hammond comments on the future of Dr. King’s message by asking the audience, “What now?” at the 34th Annual Dr. Martin Luther King Jr. Celebration held in Walker on Thursday morning.

Endowment, Page 10

MIT’s
Oldest and Largest
Newspaper

Volume 128, Number 6
Cambridge, Massachusetts 02139
Friday, February 22, 2008

The Weather

Today: Snow developing, High 30°F (-1°C)
Tonight: Moderate to heavy snow, Low 2°F (-18°C)
Tomorrow: Persistent showers, High 33°F (1°C)
Details, Page 2

The moon passed completely into the Earth’s shadow this past Wednesday night in the last total lunar eclipse until Dec. 2010. Here, the moon re-emerges after being completely eclipsed from 10:05 to 10:51 p.m. See http://eureurtlefeb.nasa.gov/eclipse/ for more information on lunar and solar eclipses.

Arts

You mean you don’t record over video rentals? Check out the review of ‘Be Kind Rewind.’ Page 8
**New Charges of Cheating Emerge Against the Patriots**

By John Branch and Greg Bishop

The New York Times

The Patriots' pattern of illicitly videotaping the signals of opposing NFL coaches began in coach Bill Belichick's first preseason with the team, a former colleague said. The information was then put to use in that year's regular-season opener against the Tampa Bay Buccaneers, Belichick's debut as New England's head coach. 

The tactic was adopted to meet objections from council members and senior officials in both Pakistan, whose existence was described by some officials as being too close to the United States. 

But by noon and become steadier and heavier toward the evening. Expect a few

**Today:** Snow developing, several inches by dinner hour. High 30°F (-1°C).

**Tuesday:** Moderate to heavy snow becoming lighter after midnight. Winds will be strong, possibly with gusts of 60 mph. Heavy snow possible in the eastern third of the state. 

**Wednesday:** Persistent light snow and flurries through midnight, cloudy skies thereafter. High 33°F (-1°C).

**Thursday:** Sunny, mostly cloudy, High 38°F (3°C).

**Friday:** Mosty sunny, High 41°F (5°C).
By Michael Slackman

WASHINGTON

US fighter jets have barely begun exercising, knowing the precise forces required to move atoms “helps us to think about the kinds of things that we might be able to do,” said an official who asked to remain unsigned.

A Different Kind of Doubt Still lingers

The exercises are just a small part of Toyota’s plan to search continuously for ways to make its operations more efficient and safe for its employees and customers.

The broader goal, said Mr. Ishihara, is to bring Toyota’s flagship personal computer products — the Windows operating system and Office productivity tools — further into the era of the Internet.

This means, among other things, people want a seamless flow of data, analyses of programming code among desktop PCs and the Internet, especially as they make the shift from using software on a PC to a Web-based one.

“These steps are being taken on our own,” said Steve Ballmer, Microsoft’s chief executive. “We are not a member of Microsoft’s ‘unique legal situation,’ but it was also the company’s effort to adapt to ‘the opportunities and risks of a more connected, more competitive world’.”

Microsoft will Share More Secrets

By Steve Lohr

WASHINGTON

Microsoft executives, in a conference call, characterized the announcement as a “statement in the shop’s business practices and a signal of technical leadership.”

Microsoft has faced criticism from various parties and from British-based human rights groups for rendition flights involving their soil or airspace since the Sept. 11 attack.

In tones refined with righteousness, Britain’s foreign secretary, David Miliband, told the House of Commons on Thursday, “contrary to earlier media reports, the United States has confirmed using an American-operated airlift on a British island in the Indian Ocean for refueling two ‘rendition’ flights carrying terror suspects.

The American acknowledgment contradicted previous assurances by the US government to Britain’s government that such flights had not occurred on British territory or passed through British airspace. Each flight carried a single detainee and stopped on the island of Diego Garcia.

The United States has explained the flights as a “technical” solution to a “logistical problem,” but the admission, which came in response to a motion by the government, came as a surprise to many in Britain who had long accused the US of using Diego Garcia as a hub for rendition flights.

The director of the Central Intelligence Agency, Gen. Michael V. Hayden, informed British officials of the flights during a visit to London. He issued a statement Thursday to the agency’s staff in Westminster saying a fresh review of agency records had shown that the CIA had erred in assuring Britain previously that there had been “no rendition flights involving their soil or airspace” since the Sept. 11 attacks.

At Toyota, Global Giant Reaches for Agility

By Michelle Maynard

SAN FRANCISCO

In addition to the above-mentioned enhancements, the researchers at the company have continued to explore how they might be able to build new facilities or adapt existing ones to different situations.

Knowing the precise forces required to move atoms “helps us to think about the kinds of things that we might be able to do,” said an official who asked to remain unsigned.

Scientists Measure What it Takes to Push a Single Atom

By Kenneth Chang

New York Times

IBM scientists have measured the force needed to nudge one atom. About one-130-millionth of an ounce of force pushes a carbon atom about one ten-thousandth of a millionth of an inch across.

Pushing the same atom over a copper surface is easier, just one-1,000,000th as much force.

The scientists report these musings in a Friday issue of the journal Science.

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On Tuesday, Wisconsin handed Barack Obama his ninth consecutive victory in the race for the Democratic nomination. In state after state, Obama’s speeches have drawn together thousands of people from all backgrounds to stand up and shout “Yes we can.” But, as Obama-mania fades in the coming months, the focus will turn to where each candidate stands on the issues. Political pundits have repeatedly argued that although Obama is inspirational, he doesn’t address the “must-and-potatoes problems.” David Brooks of the New York Times calls Obama “America’s message of hope for our enemies.” So what are his policies? This question is being echoed more loudly with Obama’s increasing success in the primaries. While I agree that Obama should provide a more concrete outline of the policies equally, I believe that his message and his leadership should be given a world-view that will have a real impact on policy.

Bush’s unilateral world-view has cost us the respect and cooperation of our allies and trapped us in an unjustified war. After 9/11, there was a small window of time when we had the sympathies of the world — but instead of forging stronger relationships with new allies (especially in the Middle East), we antagonized even our friends. Having gotten us into the war in Iraq, Bush’s insistence that we reverse the damage done by the Bush administration.

In order to increase stability in the Middle East and protect our own national security, our leaders need to work peacefully with Iran, Syria, Egypt and Saudi Arabia to encourage Israeli and Palestinian leaders to unify and enforce the two-state solution. We need leadership that upholds the constitution by asserting that even enemy combatants are entitled to a fair trial. We need to work together with rising economic powers like India and China to ratify trade agreements that ensure jobs for our workers here at home and while encouraging trade with countries that have struggling economies.

There have been two main objections to Obama’s candidacy. The first is that at age 47, he is too young and needs more experience in Washington. The second criticism is that he is too idealistic and naive. But they should try it: this attitude has allowed the U.S. in its short history to surpass every other nation in economic growth and global influence. It is what gave the authors of our constitution the audacity to say that all men are created equal. But the dream of treating every human being with dignity is now in danger — the Bush administration has used fear to convince the American people that certain groups should be separated from the rest of us in the name of national security. The American spirit to stand up for what is right has been stripped and replaced with a reckless panic.

Obama’s world-view could lead to policies that reverse the damage done by the Bush administration. In order to increase stability in the Middle East and protect our own national security, our leaders need to work peacefully with Iran, Syria, Egypt and Saudi Arabia to encourage Israeli and Palestinian leaders to unify and enforce the two-state solution. We need leadership that upholds the constitution by asserting that even enemy combatants are entitled to a fair trial. We need to work together with rising economic powers like India and China to ratify trade agreements that ensure jobs for our workers here at home while encouraging trade with countries that have struggling economies.

Elsewhere, this administration’s policies on homeland security have been guided by the world-view that America is fighting a war between good and evil and that terrorists are everywhere, waiting to strike. Bush and his advisors have engineered a campaign of fear which has slowly eroded both the spirit and civil rights of the American people. This spirit is what Obama is trying to revive. Some might scoff at American optimism, calling it unrealistic and naïve. But they should try it: this attitude has allowed the U.S. in its short history to surpass every other nation in economic growth and global influence. It is what gave the authors of our constitution the audacity to say that all men are created equal. But the dream of treating every human being with dignity is now in danger — the Bush administration has used fear to convince the American people that certain groups should be separated from the rest of us in the name of national security. The American spirit to stand up for what is right has been stripped and replaced with a reckless panic.

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Manisha Padi and Ying Yang

As spring semester kicks off, long hours in freezing classrooms and irksome gyms drag us back to earth after the good times of IAP. We all would love to show off the fruits of our holiday bargain shopping, but the cold is forcing us to cover up with the usual MIT sweatshirts and jeans. It seems a shame, isn’t it? Frustrating that cute, affordable clothes in the winter seem to come only in short sleeves?

We refuse to settle for bland, unfashionable winter layers and want to pack some punch with lively, properly layered clothes. So it sat in my room, graciously accepting the iron wondering if I would ever actually use the thing. So it sat in my room, waiting for another 18 years and proving difficult as all the artsy girls I know are always looking to pack some punch with their outfits. I'm still short one capacitor. I can't believe my puppies really are. To satisfy any curiosities, I'm sure you can prove difficult as all the artsy girls I know are always looking to pack some punch with their outfits. I'm still short one capacitor. I can't believe my puppies really are. To satisfy any curiosities, I

The iron lay dormant for another year and finally, I open the box and, having我对 every layer — otherwise, how can anyone tell you're dressing so ingeniously? We found that the best way to make this happen is to use the brightest colors on the inner layers and to work out to neutrals in outer layers. This way, you can buy fewer thick outer layers (which tend to be more expensive) and change up the inner layers more often. A little strategically placed color will make your neutrals look chic and fun without seeming too serious and dull.

For a final layer, you could go for a less fitted sweater, again the kind that shows off under layers. An even more exciting choice is a warm vest. We recommend a tighter style, though it's also smooths over flaws to make them less visible. What next? It's not too cold, wear a warm sweater that buttons, zips, or has a low neck that shows off the under layers while still covering up. For ladies, if you've made your under layer long enough, you can now play around with shorter lengths.

So we here at Figuring out Fashion decided to take a long trip to the mall, and a long, hard look at what works and doesn’t work in the world of layering.

This weeks’ goal: To gain the fashion know-how to always be able to take off our coats in class no matter how cold it is.

The key to sophisticated layering is being able to actually see every layer — otherwise, how can anyone tell you're dressing so ingeniously? We found that the best way to make this happen is to use the brightest colors on the inner layers and to work out to neutrals in outer layers. This way, you can buy fewer thick outer layers (which tend to be more expensive) and change up the inner layers more often. A little strategically placed color will make your neutrals look chic and fun without seeming too serious and dull.

We started with a tight tank top or undershirt at the first base layer. Not only does it protect your original layering, but it also smooths over flaws to make them less visible. What next? It's not too cold, wear a warm sweater that buttons, zips, or has a low neck that shows off the under layers while still covering up. For ladies, if you've made your under layer long enough, you can now play around with shorter lengths.

Rather, one could dream up half a dozen more that way for another 18? It’s not like one needs the first 18 years of my life. Why not just keep it shipping out to the big city, dreams of receiving by no means am I ungrateful. I'm sure you can prove difficult as all the artsy girls I know are always looking to pack some punch with their outfits. I'm still short one capacitor. I can't believe my puppies really are. To satisfy any curiosities, I

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ACROSS
1. Edgy mirages, spectacles: Wonders! (8)
5. Seal like a youthful swan (6)
10. Introduce unusual discount (9)
11. Indian city’s operator greeting (5)
12. Generally, Robert’s calm side (3)
13. “Of course around six, reorganize. You slob!” (9)
15. Lawless portrayal: Exes near prime locations (4)
19. Doctor messes up indoor clouting (15)
22. Hardy woman, nicknamed Theresa, hears horse race on meadow (4, 11)
24. Clue mix-up: See 8 Down (4)
27. Changing crone into croon (9)
31. A hairstyle hubbub (3)
32. Usually partially softened (5)
33. King who hitched many an electrical unit together with physics (5, 4)
34. Sadness in Southwest: Spectacles surround railroad (6)
35. Female disciple is not amateur to earn first. Gee! (8)
36. Example about right unit of energy (3)
37. Protest behended friend (4)
38. “Hottie! You manage the review sheet?” (5, 5)
39. Destroy uranium in decay (4)
40. Article one: Lullaby listing (Brit.) (9)
41. It lightens my day? (3)
42. Look back into barren night, and see inside (5)
43. Vault built of chromium and Spanish platinum (5)
44. Female disciple is not amateur to earn first. Gee! (8)
45. Usually partially softened (5)
46. Synthetic fabric only made after Nike (5)
47. Issue caused by changing times (5)
48. Catalogue doesn’t have top glass cleaner (5)
49. Synthetic fabric only made after Nike (5)
50. Article one: Lullaby listing (Brit.) (9)
51. Vault built of chromium and Spanish platinum (5)
52. Issue caused by changing times (5)
53. Article one: Lullaby listing (Brit.) (9)
54. Bury inside preprint errors (5)
55. Bury inside preprint errors (5)
56. Fit to suit (4)
57. Fit to suit (4)
58. Fit to suit (4)
59. ‘Norma’ song (6)
60. ‘Norma’ song (6)
61. ‘Norma’ song (6)
62. ‘Norma’ song (6)
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69. ‘Norma’ song (6)
70. ‘Norma’ song (6)
71. ‘Norma’ song (6)

DOWN
1. Italian plumber netted all but last puppet (10)
2. Before mid-month, Communist Four splits again (9)
3. Alternatively, charcoal or chocolate source (5)
4. Issues caused by changing times (5)
5. Catalogue doesn’t have top glass cleaner (5)
6. Catalogue doesn’t have top glass cleaner (5)
7. Catalogue doesn’t have top glass cleaner (5)
8. twiglike object without its tail (4)
9. Lone and nothing but (4)
10. Medieval weapon created from large tree limb (7)
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68. Medieval weapon created from large tree limb (7)
69. Medieval weapon created from large tree limb (7)
70. Medieval weapon created from large tree limb (7)
71. Medieval weapon created from large tree limb (7)
SU | DO | KU

Instructions: Fill in the grid so that each column, row, and 3 by 3 grid contains exactly one of each of the digits 1 through 9.

Solution on page 12.
MOVIE REVIEW

Makenshapes Movie With His Heart and Soul

Gondry’s Be Kind Rewind Revitalizes the Creative Process

By Charles Lin

Directed by Jon Poll

Rated PG-13

February 22, 2008

When all the tapes in the video store get erased, an employee and his friend decide to replace them by making their own movies on a shoestring budget. This two- género plays, made by Mike Doughty, is a great selection of classic movies including “Driving Miss Daisy” and “Ghost Busters.” Their hilarious, low-budget effects and overacted catchphrases, become an unexpected hit with the locals. Soon the whole town is on board with their movie re-interpretation scheme, acting and producing remake hit after hit.

The two protagonists hope that by renting out these remake movies (Sweded as they call them), Don’t ask why — it’s about as random as it gets), they can raise enough money to save their dying video store. This begins the hyperborean premise of “Be Kind Rewind,” a new film by Michel Gondry. Is there more to this movie than watching Jack Black hilariously recreate some of our generation’s most iconic cinematic moments? This is no off, if you need more than that, this movie probably won’t do it. But to answer, yes there is more, a lot more. Just be warned.

“Be Kind Rewind” is a meta-sandwich. A 70s throwback of various genres surrounding the good-natured story of two buddies willing to do anything to save their beloved video store. To start, it’s a movie about people making movies about movies. At one level (say “Be Kind Rewind” is ostensibly a metafilm, but it is not a comedy.

Instead, I found myself with a bunch of mediocre three-stream-of-consciousness approach that is just pounding drums layered upon more and more and “Drum Gets a Glimpse” into the drone. After another few lackluster Liars numbers, the band began the centerpiece of the evening, “Leather Prowler,” a concept album featuring the characters Drum and the Uncomfortable Can.” While drummer Julian Gross seemed at least a little bored playing this stuff, Hemphill beautifully mixed the melody of “Drum Gets a Glimpse” into the drone. For what it was — four minutes so loud that your moms are going to hear this back home. For what it was — four minutes so loud that your moms are going to hear this back home. For what it was — four minutes so loud that your moms are going to hear this back home.

In the middle of the music, the crowd had made its way through traditional rock song structures in favor of a more straightforward business approach that is just as unsettling as the music. And when Liars came back, for the last three songs their three- chord pop songs, I almost had to cry. But one bad release wasn’t going to keep me from attending. I was one of the mostfäschungs bands in existence. In addition to frequently changing musical styles, Liars are also notorious for frequently changing members, so when the three-flamed- instrumentists took the stage, the audience didn’t know if they were the band or the roadies. There was no applause when Angus Andrew, the tall, scraggly, and certainly unmistakable Australian singer and frontman of 2004’s “We Try Wrong. So We Break.” The night didn’t look as good as they thought it would. “Houseclouds,” quite possibly the most regrettable thing in the entire Liars catalog. Also from Liars, “Houseclouds,” does everything it can to replicate Beck’s most recent output. It’s an attempt at a comeback, but it certainly does not belong on the same setlist as “We Fenced Other Houses with the Bones of Our Own.” At this point, Liars had turned to three-reverso-knot guitar, making the song slightly more interesting.

That said, “We Fenced Other Houses” was fantastic. The slow-building cumbia song built over the course of five hypnotic minutes until Andrew invoked the audience to close the call-and-response: “Fly, by the devil’s in your eye, shoot, shoot — WE’RE DOOMED, WE’RE DOOMED!” Meanwhile, “Drum” and Jon Poll, written by Gustav Nach

Directed by Jon Poll

Rated R

February 22, 2008

I’ve seen the trailers for “Charlie Bartlett” and we’re probably expecting the movie to be a comedy in the style of “American Pie” or “The 40-Year Old Virgin.” It was a first take direction. Jon Poll about this, he explained that this is how he approaches a project. In fact, the original script was even darker and was made “warm and fuzzy with Gustav [Nach].” “Charlie Bartlett” is the story of — you guessed it — Charlie Bartlett (Anton Yelchin), a wealthy teen who is forced into public school after he is kicked out of yet another private school. An awkward and gangly teen who doesn’t really fit in (and as we all know, all teenagers want to do is fit in), Charlie de- cides his ticket to popularity is to be an unofficial school psychologist, offering both therapy and melodrama for the unhappy student popula- tion. Meanwhile, he starts dating Susan (Kat Dennings), the daughter of the principal (Robert Downey, Jr.). Charlie’s family is burning with trying to fit in and realize they all far more complex than he imagines. When I was six I realized I might be dead. For the rotten tomato, there’s a tongue- in-cheek sense that all movies are made “for what it was — four minutes so loud that your moms are going to hear this back home. For what it was — four minutes so loud that your moms are going to hear this back home.

But really, it is the combination of Gustav Nach’s screenplay and Jon Poll’s direction that make this movie work. Nach wrote an intelligent screenplay that shows the characters Bartlett and Jon Poll, written by Gustav Nach

Directed by Jon Poll

Rated R

February 22, 2008

I’ve seen the trailers for “Charlie Bartlett” and we’re probably expecting the movie to be a comedy in the style of “American Pie” or “The 40-Year OldVirgin.” It was a first take direction. Jon Poll about this, he explained that this is how he approaches a project. In fact, the original script was even darker and was made “warm and fuzzy with Gustav [Nach].” “Charlie Bartlett” is the story of — you guessed it — Charlie Bartlett (Anton Yelchin), a wealthy teen who is forced into public school after he is kicked out of yet another private school. An awkward and gangly teen who doesn’t really fit in (and as we all know, all teenagers want to do is fit in), Charlie de- cides his ticket to popularity is to be an unofficial school psychologist, offering both therapy and melodrama for the unhappy student popula- tion. Meanwhile, he starts dating Susan (Kat Dennings), the daughter of the principal (Robert Downey, Jr.). Charlie’s family is burning with trying to fit in and realize they all far more complex than he imagines. When I was six I realized I might be dead.
NatyapresentsDNA
In Dance

MIT Natya, known for its Bharatha Natyam dancers, performed an Indian classical representation of the Science of DNA last Monday in Little Kresge.

(clockwise from right)
† Renuka Ramanathan ’10 and Samiksha Nayak ’10 use their bodies to represent DNA.
† Intricate costumes and jewelry like those worn by Amrita Saigal ’10 were an important part of the performance.
† Performers conveyed the complexities of DNA through dance.

Photography by Karl Williams

It’s Election Season at the Coop, too!

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Good luck on the campaign trail!
Endowment Pay-Out Rate Can Vary Due to Individual Accounts

Endowment, from Page 1

plus individual accounts within the endowment. She said those factors may cause the appropriate pay-out rate to fluctuate above and below five percent from year to year.

Vice President for Institute Affairs and Secretary of the Corporation Kirk D. Kolenbrander said “Five percent has been regarded as this magical line for what universities ought to spend.” He said that although MIT has spent more than five percent per year for the past nine years, “It’s crucial that universities maintain the capacity to manage their own resources.”

Kolenbrander said, “The nation has come to accept as fact that a college education is of fundamental importance and an opportunity that should be broadly available. MIT must do its part to give the nation confidence that this opportunity is well stewarded.”

The request, which was sent as a letter and not a subpoena, is comprised of eleven multi-part questions that ask for specific data, ranging from investment manager bonuses to the percentage of the endowment invested in hedge funds, and explanations of policies and processes — such as setting tuition increases and putting restrictions on endowment spending.

As a letter to the Senate, MIT’s response will be a public document. While metrics similar to the ones the Senate has requested are already publicly available, the Senate has asked for specific statistics that MIT must compute, according to Executive Director of Student Financial Services Elizabeth M. Hicks. For example, the letter asks for the percentage of students receiving university grants that are greater than or equal to 25, 50, 75, and 100 percent of tuition and fees, as opposed to the average grant that a student receives — a number that MIT already posts on its financial aid Web site.

Despite their concerns about the possibility of increased monitoring, both Kolenbrander and Hicks said they saw the Senate’s request as an opportunity to communicate to Congress and the public that MIT is spending its endowment well and financing its students generously. “We view this as a great opportunity to tell our story,” said Hicks. “We believe we are using the endowment to help students,” she said, noting that the average debt for students who have taken loans has decreased from $23,000 to $15,000 over the past 10 years.

Are you a healthy, drug-free Type 1 Diabetic between the ages of 18-65?

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Fisher, from Page 1

record in the tape that aired on na-
tional television.)

A tinkerer by nature, Fisher spent
most of his time at NBC with the
 technical staff. Fisher said he was
 impressed at the staff’s multifari-
 ous talents, ranging from sewing to
 welding.

Fisher said that he first heard
O’Brien’s questions during the tap-
ing — none of their banter was
rehearsed. He said that talking to
Conan was just like having a normal
 conversation.

O’Brien’s energy trickles down to
his staff. Fisher said, “Organizations
collectively assume the personality
of their leader,” he said.

Fisher has gotten publicity be-
fore: he was interviewed about dark
matter for a summer 2007 episode of
the PBS show NOVA.

Aside from the ego boost of pub-
cation, Fisher said he enjoyed
being interviewed on O’Brien’s show
because, as trivial as the goal
was, he liked showing viewers how
math and science can be applied to
real life. To increase students’ inter-
est in math and science, “you have
to show how it [math and science] ap-
plies to their lives,” he said.

Asked whether he would quit his
day job to be on TV, Fisher replied
confidently and with a slight chuck-
le, “I love my job.”

Corey G. Harris ’10 and Alexandra M. Beyer ’10 perform in Mo-
cha Moves Dance Group’s 3rd annual performance of “Mocha
Nights.” The last performance takes place tonight in Kresge at
7:30 p.m. Tickets are $8 at the door.

Fisher Says Conan’s Staff Was Energetic, Intelligent, And Fun

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Fisher Says Conan’s Staff Was Energetic, Intelligent, And Fun
Stanford University Expands Its Financial Aid Into Middle Class

By Jonathan D. Glater
The New York Times
San Francisco

Stanford University on Wednesday became the latest prominent university to expand financial aid well into the middle class. It announced that students from families earning less than $100,000 a year would not be charged tuition.

Under the new system, which takes effect in the fall, families earning less than $60,000 would not pay for room and board.

Tuition next year is $36,030. Room and board add $11,182.

The move follows announcements of expanded aid by Harvard, Yale and many others that provide tuition breaks to families with incomes well above average as tuition increases have become an issue in Congress.

Yale said in January that it would sharply increase financial aid for undergraduates, even for families with annual incomes up to $200,000.

Karen Cooper, director of financial aid at Stanford, said the university would allot $21 million to financial aid, raising the aid to $114 million. Cooper said the increase was the largest in the institution’s history.

“We heard very clearly from our parents, especially parents that considered themselves middle income, that the amount that we expected from them was very difficult,” Cooper said.

Students whose tuition, room and board are paid for will be expected to contribute about $4,500 a year from summer earnings and on-campus work, she said. For students whose tuition is waived, the university will continue to judge family assets and circumstances and determine financial aid.

Lawmakers in Washington have criticized wealthy colleges for continuing to increase tuitions even as their endowments swell. The lawmakers have raised the possibility of requiring colleges, which benefit from tax exemptions on donations, to spend at least 5 percent of their endowments a year, as private foundations are required to do. The Stanford endowment exceeds $17 billion.

“I hope we’re seeing a trend toward a shift in thinking,” said Sen. Charles E. Grassley of Iowa, the senior Republican on the Senate Finance Committee, which has a central role in setting tax policy.

Stanford endowment exceeds $17 billion. If the wealthiest universities have been extending aid to families well into the reaches of the upper middle class, others have concentrated on reducing student debt by replacing loans with grants. Washington University in St. Louis on Wednesday became the latest in a parade of colleges replacing need-based loans with grants for students from families earning less than $60,000. Princeton University announced such a step a decade ago.

Overall, the actions are reshaping the financial aid landscape for students entering college this year and could mean that in some cases, attending some of the nation’s wealthiest and most elite private colleges could cost less than going to public universities.

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Saturday, February 23, 2008
Kresge Auditorium
48 Massachusetts Avenue
(Across from MIT’s Student Center)

The Tech
February 22, 2008

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Solution to Words...

from page 7

Solution to Crossword

from page 6

Solution to Sudoku

from page 2

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We will hold a competition for the Best Report ($100), Best Feature article ($100), and Best UROP Summary ($25). Winners will be determined by the editors of MURJ, and submissions will be evaluated anonymously.

Prizes will be in the form of gift certificates.

The deadline for submissions is Wednesday, February 27.

You can check out our last issue at web.mit.edu/murj/www.

Email murj-chiefer@mit.edu if you have any questions.

Grad Student P/D/F Could Be Approved With Sunset Clause

Grades, from Page 1

commented that there could be a sunset clause applied to the change, similar to how the Sophomore Exploratory option began as a five year experiment. After five years, the faculty would conduct a formal review to determine whether the P/D/F option was being appropriately used by graduate students, and then decide whether to adopt it formally. Bell also added that a five year review could revisit some of the restrictions currently included in the proposal.

The motion was written in cooperation with Graduate Student Council members and Dean of Graduate Students Steven R. Levin '72.

The full text of the motion is available online to people with MIT certificates at https://web.mit.edu/dept/libdata/10ldepts/d/archives/facmin/080220/080220.html.

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On Monday, Feb. 25, the Federal Communications Commission is holding a public hearing in Cambridge on the future of the Internet.

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Learn more at SavetheInternet.com/boston
Legendary Blackjack Analysts Alive But Still Widely Unknown

By Joseph P. Kahn

In 1956, the Journal of the American Statistical Association published an article that led to an avalanche of books, movies, and even a United States Senate hearing. What it did not include, recalls James McDermott, nobody showed much interest in the world of blackjack, either. "As I said in my [Vegas] speech, my knowledge of blackjack ended with the first edition of 'Beat the Dealer,'" says Baldwin. McDermott skinned Mezrich’s book to its bones, as the MIT blackjack teams but thought they dwelled too much on characters who “cared more about the game itself.” In Vegas, where casinos take a vigilante (and aggressive) stance toward card counters, he didn’t play even a single hand of blackjack.

Crunching numbers

Shrouded by myth, the story of the Four Horsemen—four math majors from MIT who, in 1959, developed the first card counting system, a forerunner of more sophisticated systems later used by the MIT teams and others.—is one of the most remarkable in casino history. Their study created a buzz in the gambling world, but these guys all had highly technical backgrounds,” McDermott says. “I was concerned that putting a black face on the cover would hurt sales in the south, so the photo got pulled.”

If the world is divided into the smart and the rest, the Four Horsemen were the smart. Their research and is credited with creating systems later used by the MIT teams.

Their study created a buzz in the gambling world — yet never cashing in by beating wits with the gambling establishment. By Joseph P. Kahn

February 22, 2008

THE TECH Page 15

Legendary Blackjack Analysts Alive But Still Widely Unknown

By Joseph P. Kahn

The Four Horsemen was an oddball mix of academics and amateur card enthusiasts that led to the JASA paper in 1956. Thorp later borrowed their notebooks and validated their findings on an IBM 704 computer at MIT — Baldwin visited Vegas to study how casinos worked. Back at Aberdeen, he continued the modeling that led to the JASA paper in which, the authors wrote, "a player's strategic problems are analyzed with the objective of finding the maximizing his mathematical expectation approach." Their study created a buzz in gambling circles and a book deal for the authors. With a foreword by Charles Van Doren, the quiz show star soon to be tainted by scandal, "Playing Blackjack" retained for 8 1/2. It included a pullout strategy chart with sections on "Down or Stand." "Doubling Down," and "Splitting Pairs." What it did not include, recalls Maisel, was an author's cover photo.

"We were a Protestant, a Catholic, a Jew, and a black man," Maisel says. "There was concern that putting a black face on the cover would hurt sales in the south, so the photo got pulled." Unlike the JASA article, the book was written for nonstatisticians. Five thousand copies were printed, hardly enough to make the authors rich or famous, even though a copy recently went for $300 on eBay.

"I think I made a total of $28," says McDermott with a laugh. Saya Baldwin, "It was a slow-motion gold rush, trying to make money off this. But nobody made reservations for Las Vegas." Why didn’t they? "I calculated the house still had the advantage in the long run," Baldwin says. "Because I was the only one who'd set foot in a casino, my opinion was dominant — and incorrect. I didn’t see any future in what's now called card counting."

Eight men got their due, Thorp, who now heads a California-based investment firm, says the four had neither the time nor the tools to develop their research into a comprehensive gaming strategy. "They didn’t have a winning system, a way to cut the odds," Thorp notes. "They didn’t realize the game was really beatable.

Miesel agrees. "In statistical terms, we still had a negative expectation," he says. "Unless you got lucky, you’d still lose in the long run." Baldwin returned to graduate school, eventually leaving mathematics to work in applied statistics and data processing. McDermott worked for the federal government before spending 35 years with IBM in market research and business planning. Cantey abandoned plans to become a preachers and pursued a career in government research. The four stayed in touch, though, getting together once every decade or so. But until the Internet came along, says McDermott, nobody showed much interest in their whereabouts. For that matter, the four didn’t pay much attention to the world of black- jack, either.

"The “Beat the Dealer” book wasn’t big in the 1960s. It was a slow-motion gold rush, trying to make money off this. But nobody made reservations for Las Vegas."

"For your paper, which ultimately led to the book and the movie adaptation, “21,” both chronicle the exploits of MIT teams that took the casinos for millions in the 1990s. How they beat the odds and made a small fortune in the process has become the stuff of pop-culture legend. Until recently, though, the black- jack world had parted over one lingering mystery. Whatever happened to the legend? Four Horsemen, a group of young US Army researchers who published the first groundwork-breaking guide to winning blackjack more than 50 years ago?"

In 1990s. How they beat the odds and took the casinos for millions in the movie adaptation, “21,” both chronicle the exploits of MIT teams that took the casinos for millions in the 1990s. How they beat the odds and made a small fortune in the process has become the stuff of pop-culture legend. Until recently, though, the blackjack world had parted over one lingering mystery. Whatever happened to the legendary Four Horsemen, a group of young US Army researchers who published the first groundwork-breaking guide to winning black jack more than 50 years ago? None had gone on to become a professional gambler or recognized blackjack authority. Yet together they revolutionized the game with their 1956 analytical study, published in the Journal of the American Statistical Association, and their book “Playing Blackjack to Win,” issued in 1957. "They were all college kids," says James McDermott, sitting in his Cambridge apartment. "When I e-mailed some of our blackjack ex- pert on the 50th anniversary of our book, his response was, “My God, you people are still alive!”"

Not only are the Horsemen alive, but their book is now a hit in its 10th edition, but they’re taking a well-deserved victory lap, too. Last month, McDermott, a retired IBM executive, was inducted into the Blackjack Hall of Fame along with co-author Roger Baldwin, Herbert Maisel, and Wilbert Cantey. Only Maisel failed to make the ceremony, held at a private club in Las Vegas and attended by scores of the game’s elite players. McDermott, Baldwin, and Cantey signed autographs and received a standing ovation.

Meanwhile, their book is being revisited this summer with a new introduction by Edward O. Thorp. Thorp’s 1962 bestseller “Beat the Dealer” drew heavily on the Horse- men’s research and is credited with doing more to popularize the game than any other single work. Thorp and McDermott met in Los Ange- les after the Las Vegas event, with Thorp inscribing McDermott’s copy of “Beat the Dealer” study “Thanks for your paper, which ultimately led to this book.”

I expected to find more of the green-eyeshade, Rat Pack type, but these guys all had highly technical backgrounds,” McDermott says of his encounters with black jack’s best and brightest. He adds, "I was amazed when several said our book had changed their lives."

Crunching numbers

"Shrouded by myth, the story of the Four Horsemen is a classic American tale of an oddball mix of academics and amateur card enthusiasts matching wits with the gambling establish- ment — yet never cashing in by beat- ing the casinos at their own game." They met in the early 1950s as Army cadets at the Aberdeen Proving Ground in Maryland. Mc- Dermott and Baldwin had just grad- uate work in mathematics at Co- lumbia University. Maisel, who later taught computer science at George- town University, was part of a team assigned to analyze such problems as weapons trajectory. Cantey, a ser- geant, was the ranking officer among the fourmen and its only African-American. Baldwin and Cantey were card players as well, mostly of the penn- ante variety. During a game of deal- er’s choice, blackjack was called. Baldwin knew the game’s basics — players try to draw hands total- ing as close to 21 points as possible, without going over — but did not know that casinos forced dealers to

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Jet Li, martial artist and international film star, appears as one of three keynote speakers at the China in Development Conference on Monday in the Wang Auditorium. This is the first China in Development Conference organized by the MIT-China Development Initiative.
**SPORTS**

**Game of the Week: Women's Ice Hockey Nets First Win of Year**

By DAPER Staff

The women's ice hockey team registered its first win of the season last Friday with a 3-1 victory over Plymouth State University and then notched a 2-2 overtime tie with Castleton State College on Saturday. Defenderwoman Stephanie V. Brenman '09 and forward Laura A. Kazmierski '11 each tallied three points during the road trip as the team improved its record to 15-2 overall and 1-4-2 within the Eastern College Athletic Conference East division. Plymouth State fell to 0-17-1 (0-15-1) and Castleton State moved to 5-13-4 (4-9-4).

MIT opened the scoring against Plymouth State and then Brenman connected on a pass from Kazmierski for a power-play goal. Exactly 57 seconds later, Barbara A. McCarragher '10 set up Sara E. John for what proved to be the game-winning goal. The game continued as a defensive struggle until the Spartans cut the deficit in half with a goal at 6:46 remaining in the second period. Both sides played well in the third period, notching nine shots each, before Brenman sealed the win with an empty-net goal with four seconds left to play. In net, Rachel A. Bowens-Rubin '11 collected 15 saves for the first win of her career.

Against Castleton State, the Kazmierski-Brenman connection returned as MIT took the lead 9:04 into the game. The Spartans dominated the second period though, out-shooting the Engineers 22-4 and scoring two goals to take the lead, 2-1. The Engineers put pressure on Castleton State during the final period of regulation, and eventually broke through when Kazmierski set up John for the game-tying power-play goal with only 30 seconds left. In overtime, Castleton State recorded a 10-2 advantage in shots but Bowens-Rubin denied every attempt, finishing the game with 46 saves. After her great performances over the weekend, Bowens-Rubin was named the ECAC East Goaltender of the Week. In all, she recorded 61 saves, a .953 save percentage, and a 2-2-0 record.

The team improved its record to 1-3-2 with 14th-ranked Castleton State during the final period of regulation, and eventually broke through when Kazmierski set up John for the game-tying power-play goal with only 30 seconds left. In overtime, Castleton State recorded a 10-2 advantage in shots but Bowens-Rubin denied every attempt, finishing the game with 46 saves. After her great performances over the weekend, Bowens-Rubin was named the ECAC East Goaltender of the Week. In all, she recorded 61 saves, a .953 save percentage, and a 2-2-0 record. After their great performances over the weekend, Bowens-Rubin was named the ECAC East Goaltender of the Week. In all, she recorded 61 saves, a .953 save percentage, and a 2-2-0 record.

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**Kopylov Earns Sabre Title as Fencing Wins New England Champ**

By DAPER Staff

The men's and women's fencing teams won the New England Championship last weekend, the seventh time ever that both teams have won the title during the same year. The men's squad earned its 24th title while the women tallied their 14th crown.

A margin of three victories over Boston College was just enough to help the men's team secure its first championship since 2005-06. Igor Kopylov '09 (10-2) earned his third straight sabre title, becoming the first person to achieve this milestone since Alan Williams '85 won three consecutive epee crowns from 1982-85. The Engineers tied Boston College for first place in the sabre competition as Maximilian L. Brand '11 (11-3) earned sixth and Rangarajan D. Nadarajah '10 (10-0) finished tenth in the individual rankings.

The foil team posted a 29-7 mark en route to a second-place finish. Spencer R. Sugimoto '08 (9-3) placed second, equaling his best finish since his rookie season. Benjamin T. Nwosu '09 and Richard C. LaGrandier '11 captured the 10th and 11th slots with identical records of 10-2.

The épée team captured fourth place, anchored by Stephanie H. Shin '10. Shin went 10-3 and finished ninth in the individual standings. Zhenya Gu '08 (9-4) finished twelfth in the “B” pool, and Joanna W. Tong '08 (7-6) rounded out the contingent in the “B” pool.

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