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**EMU Mathematical Sciences Department**
**Fall 2008**

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## Summer in China

**Leah Boyer**, associate professor of physics, shares some of her experiences leading a cross-cultural trip this summer. You can find some pictures and a few videos from the trip at **http://www.emu.edu/math/integram/china2008**.

The EMU 2008 Summer China cross-culture team included two leaders and 16 students. Before we left, I had the whole trip planned. We would leave BWI on Sunday, May 11 and arrive in Beijing on Monday night. The tour agency arranged a 3-day tour of Beijing. We would then fly to Chengdu, Sichuan province, where our host university had arranged activities for our 21-day stay there. We would fly back to Beijing on June 4 and then return home to the US.

Fifteen of us (three took a different plane and left early) arrived at BWI on time but the airplane didn't. When we finally arrived at Detroit three hours late, the plane to China had already left. The crew lady told us that we could fly out on Thursday and arrive in Beijing late on Thursday night. I was so upset because that meant we would miss the whole 3-day tour in Beijing and more importantly the plane from Beijing to Chengdu. So the 15 of us waited at the Detroit airport for that lady to find some tickets for us sooner.

After a few hours, she found us some tickets. One student had to leave right away to make a flight with an 8 hour wait in Amsterdam. Five students would leave at 7 am Monday morning to fly to Toronto while the remaining nine of us would get a flight to Tokyo in the afternoon. But at least we would all be in Beijing by Tuesday night. So I called the travel agent and he agreed to pick us up at 3 different times and squeeze a 3-day trip into 2 days (just the highlights).

On Monday morning, about 5 am (5 pm Monday, May 12 in China), one student called me. Her mom just told her that there was an earthquake in Chengdu 3 hours ago. Are we going to China or returning to BWI? I called the travel agent in Beijing right away, he said Beijing was safe. So, I made the first of many decisions: we were going.

Eventually, everyone in the team made it to Beijing. We were told that Chengdu airport was closed for now. During next three weeks, I had to keep making the new travel plans every few days. We had the chance to visit many places worth visiting that were not in the original plan. Highlights included the Great Wall in Beijing, the hanging

temple in Taiyuan, and the Terra Cotta Warriors and Horses in Xian.

While in Xian (closer to Chengdu), we felt the largest after-shock, so we abandoned the plan of going to Chengdu for the last week and went to a university in Xinxiang, Henan province instead. That week we took Taiji lessons, visited English classes, visited their dancing party, had a basketball game with Chinese students, and made many friends. The Chinese students loved our students. For many of them, it was the first time to meet a foreigner. They showed us their dorms, cooked for us, and took us to their cafeteria. Some of our students talked about going to that university to teach English after they graduate.

# Department News

## Mathematics Scholarship

Congratulations to **Laura Hershey**, recipient of this year's Brenneman-Longacher Endowed Mathematics Scholarship. Laura is a first-year mathematics major from Waynesboro, Virginia. Laura has many other talents and interests in addition to mathematics, including tennis, music (piano, flute, and singing), swimming, and an uncanny knack for spotting four-leaf clovers! Laura will receive $1250 per year for four academic years.
Faculty Transitions

Yong Zhang, computer science faculty member who had been at EMU for three years, announced his resignation in late July. Dr. Zhang has moved with his family to Pennsylvania, where he has accepted a faculty position at another university. His unexpected departure precipitated other departmental changes. Computer science professor **Charles Cooley**, who had devoted half of his time to the Mathematical Sciences Department and half of his time to Institutional Research for the 2007-08 academic year, returned to full-time teaching. In addition, **Diek Wheeler**, who has a PhD in physics and is the husband of EMU biology professor Greta Ann Herin, is teaching the fall semester Finite Mathematics class and will be teaching one spring semester class as well.

# Alumni News

From **Kirby Keim** (1989, computer science): I am employed as a senior software developer at Vertex, Inc. in Sarasota, Fl. I have been there a little over two years. Our business at this location is corporate income tax software, and I work on development and maintenance of the international taxation product line. Before my current job I was a principal software engineer at Comdial Corporation, which is now Vertical Communications. My wife Yvonne and I have been married for 16 years, have three children, ranging in ages from 3 to 7, and live in Sarasota, Fl.

From **Chris Wampole** (1996, mathematics): I worked for a finance company for several years, and then discovered the Actuarial field. I began working at the ERIE Insurance Group in Erie, Pennsylvania, in 2001 as an actuarial analyst. Actuaries use past data to assess future risk. For an insurance company, they use historical loss experience to predict the appropriate price to charge for a particular policyholder. I passed the final (9th) Actuarial exam in the spring of 2007 and am now an official Actuary. I, along with my wife Cheri (Gingerich) Wampole (class of 1996) and my two kids (Seth age 9 and Vaughn age 5), am happy that the hours of studying are over.

From **Lois (Hunsberger) Yoder** (1978, mathematics, secondary education): I taught several years at Iowa Mennonite (High) School and married Curtis Yoder (1980). Curtis is an accountant for a small accounting firm in

Kalona, IA. Our three children, Karl, Luke, and Amy, attended or are currently attending EMU. We enjoy making the 14.5 hour trip to VA to visit them, serve on the Parent Council, and renew acquaintances at EMU. Since the fall of 1994, I have been employed at Pearson Educational Measurement (Iowa City, IA) in the Content Support Services group as a lead math content specialist. My work ranges from reviewing math questions for accurate and grade-level appropriate content to facilitating math content and data review meetings with state department math content specialists and teacher representatives from across the state. My education from EMC and teaching experience provided me with excellent training for this position.

# Problem Corner

Our last problem asked the reader to find a collection of 21 distinct whole numbers where the sum of their reciprocals is 1. We received several correct solutions, namely from Jesse Blosser ('03), Ellis Detwiler ('69), Milton Loyer ('67), Jim Rosenberger ('68), and Craig West. Their methods were distinct and entirely different than the one we were thinking of, which utilized Mersenne Primes and a property of perfect numbers. Recall that a perfect number is equal to the sum of its proper divisors. For example, 6 is perfect, since it is the sum of its three proper divisors, 1, 2, and 3. Note then that $1 = 1/6 + 2/6 + 3/6 = 1/6 + 1/3 + 1/2$. Similarly, 1 may be written as the sum of n unit fractions if there is a perfect integer with exactly n proper divisors. So, we simply need to demonstrate that there is a perfect number with 21 proper divisors. As each of our readers undoubtedly remembers from Discrete Math class, the number $(2p-1)(2p-1)$ is perfect if $2p-1$ is prime, and it has $2p-1$ proper divisors. Since $2047 = 211-1$ is prime, we've found (a large!) perfect number with exactly 21 proper divisors, which completes the proof.

## New Problem:

Consider three circles of radius r, each tangent to the other two. Find the area of the quasi-triangular region bounded by these three circles.

Submit solutions to Owen Byer at byer@emu.edu.

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### *What have you been doing since leaving EMU?*

Send your personal and professional updates to Deirdre Smeltzer at smeltzed@emu.edu.

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